ORDER NO. TSD-7708-281

Service Manual

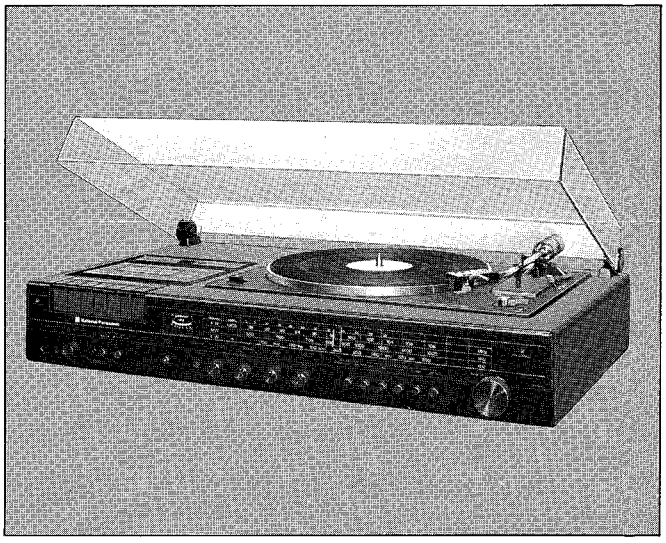
FM/AM/FM STEREO RADIO WITH DOLBY* NOISE REDUCTION SYSTEM, CASSETTE TAPE DECK AND RECORD PLAYER

Compact Stereo

SG-1090L

SG-1090L

Specifications



* Dolby is the trade mark of Dolby Laboratories, Inc.

AMPLIFIER SECTION

Power Output	MPO 2 × 22W (THD 5% 4 ohms) RMS 2 × 14W (THD 5%, 4 ohms) One Channel Driven
Frequency Response	20 Hz ~ 40 kHz, −3 dB
Power Band Width	30 Hz ~ 30 kHz, −3 dB
Input Sensitivity and Impedance:	
Mic	1 mV, 3k ohms
Tape	300 mV, 30k ohms
Rec Out and Impedance	DIN; 30 mV, 82k ohms
Tone Controls:	
Bass	±10 dB at 50 Hz
Treble	+10 dB, −16 dB at 10 kHz

FM TUNER SECTION

Frequency Range	87.5 MHz ~ 108 MHz
Intermediate Frequency (IF)	10.7 MHz
Sensitivity	2.5 μV (S/N 26 dB Mod. 40 kHz)
Image Ratio	37 dB (98 MHz)
Signal/Noise Ratio	60 dB (at 1 kHz, 60 dB, 40 kHz)
Distortion	MONO 0.5% (at 1 kHz, 60 dB, 40 kHz) STEREO 0.6% (at 1 kHz, 60 dB, 40 kHz)
Stereo Separation	40 dB (at 1 kHz, 60 dB, 30%) ≧ 30 dB 250 Hz ~ 6.3 kHz (60 dB, 30%) (DIN) ≧ 18 dB 6.3 kHz ~ 12.5 kHz (60 dB, 30%) (DIN)
Selectivity	60 dB (98 MHz 40 dB, ±400 kHz)

AM TUNER SECTION

Frequency Range	MW; 525 kHz ~ 1605 kHz (572 m ~ 187 m) LW; 145 kHz ~ 350 kHz (2070 m ~ 857 m)
Intermediate Frequency (IF)	470 kHz (UK only) 455 kHz (Except UK)
Sensitivity	MW; 100 μV/m for 50 mW (1 MHz) LW; 250 μV/m for 50 mW (220 kHz)
Image Ratio	MW; 45 dB (1 MHz) LW; 40 dB (220 kHz)

RECORD PLAYER SECTION

Player System	Belt-Drive, Automatic Return
Turntable	25 cm (10″) Aluminum Die Cast
Turntable Speeds	33-1/3 and 45 rpm, 2-speed
Wow and Flutter	0.25% (DIN WTD)
Deviation of Turntable Speeds	+2.0%, −1.0%
Phonomotor	Electronic Governor DC Motor
Cartridge	Moving Magnet type
Stylus	Diamond
Stylus Pressure	3 ± 0.5 g
Frequency Response	40 Hz ~ 20 kHz
Separation	≧ 15 dB
Signal/Noise Ratio	58 dB (DIN WTD)

TAPE DECK SECTION

Track System	4-Track, 2-Channel
Recording System	AC Bias (50 kHz) with Dolby NR System
Erasing System	AC Erase (50 kHz)
Tape Speed	4.75 cm/sec. (1-7/8 i.p.s.)
Frequency Response	25 Hz ~ 13 kHz (NORMAL) 20 Hz ~ 16 kHz (CrO_2)
Signal/Noise Ratio	DOLBY NR-OUT, 54 dB (DIN) DOLBY NR-IN, 60 dB (DIN) (10 dB or more improved at more than 5 kHz)
Erase Ratio	70 dB (DIN)
Channel Separation	43 dB (DIN)
Cross Talk	54 dB (DIN)
Wow and Flutter	0.35% (DIN)

POWER CONSUMPTION 78W

POWER SUPPLY ..... AC 110V, 120V, 220V, 240V, 50/60 Hz

DIMENSIONS (W × H × D)

Center Unit ..... 601 mm × 171 mm × 372 mm

WEIGHT

Center Unit ..... 9.3 kg

* Specifications are subject to change without notice for further improvement.

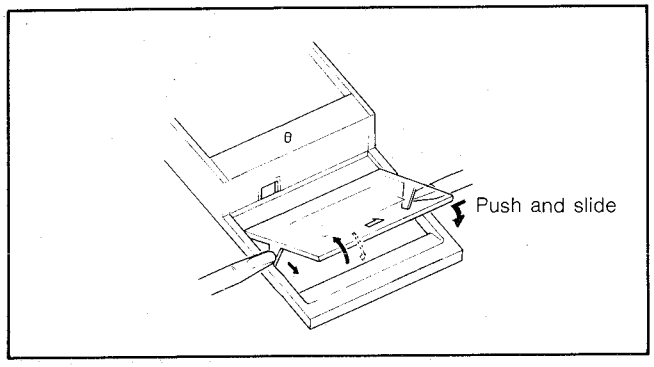
National Panasonic

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

DISASSEMBLY INSTRUCTIONS

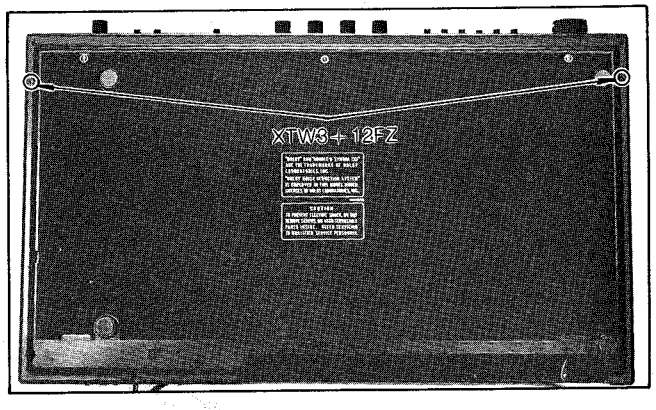
■ To Replace Components

1. Remove dust cover and record player.
2. To remove cassette lid, slide it toward you by pushing the right side.

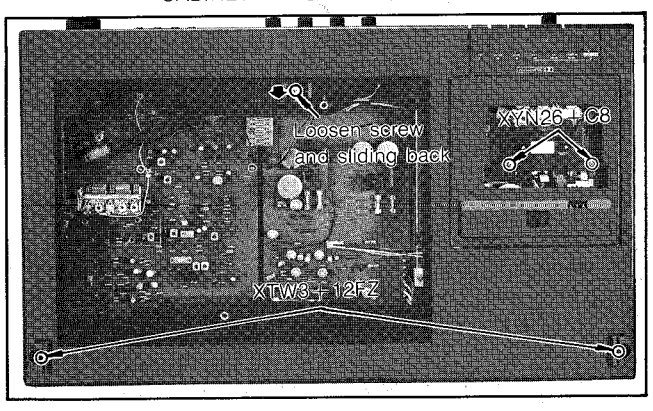


3. Remove six (6) cabinet A mounting screws, and loosen one (1) screw and sliding back.

CABINET A MOUNTING SCREWS

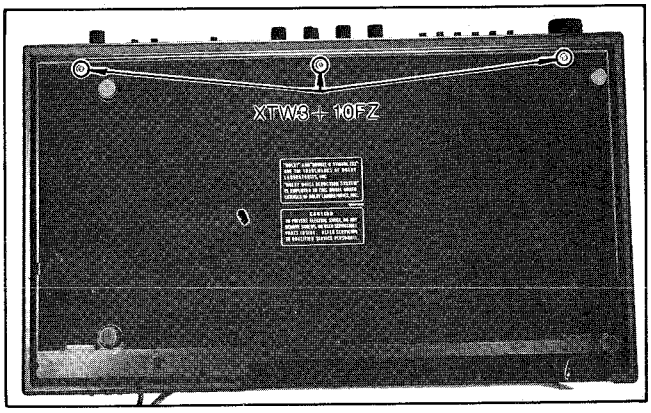


CABINET A MOUNTING SCREWS



4. Remove three (3) bottom cover mounting screws.

BOTTOM COVER MOUNTING SCREWS

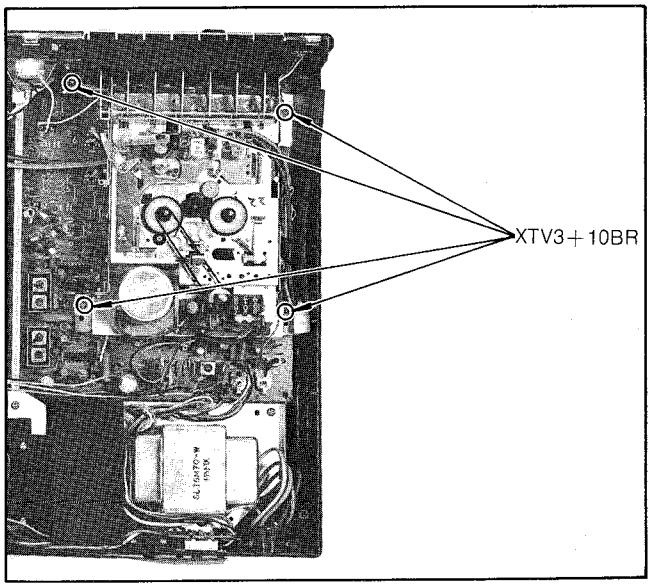


5. To reassemble reverse above procedure.

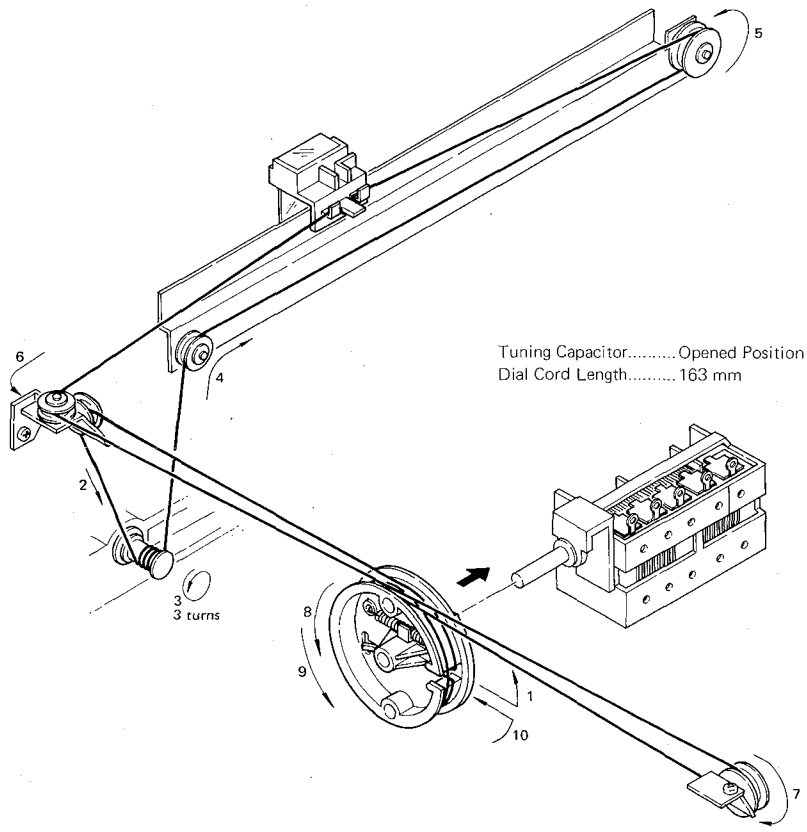
■ To Remove Cassette Tape Deck

1. Refer to above instruction "To Replace Components" 1 and 2.
2. Remove four (4) cassette tape deck mounting screws and connector plugs.

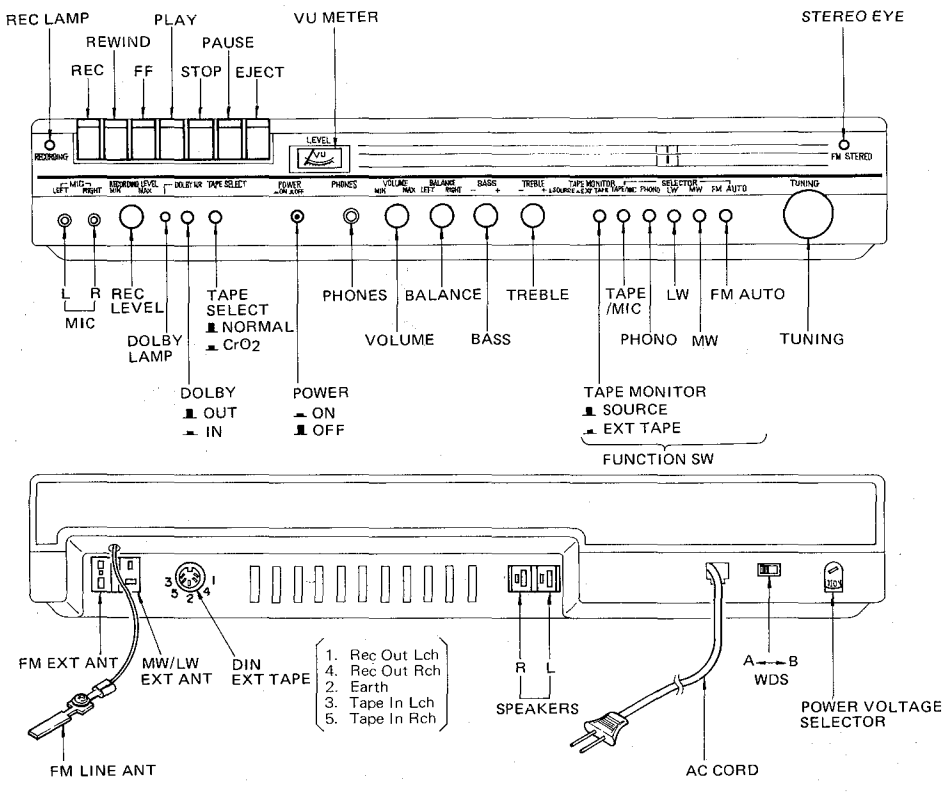
CASSETTE TAPE DECK MOUNTING SCREWS



DIAL CORD STRINGING GUIDE



ALIGNMENT INSTRUCTIONS (RADIO)–1



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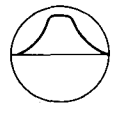
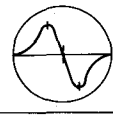
ALIGNMENT INSTRUCTIONS (RADIO)—2

Notes:

1. Volume Control ..... Maximum (AM-IF and RF, FM-RF); Minimum (FM-IF)
2. Treble Control ..... Center
3. Bass Control..... Center
4. Balance Control..... Center
5. Function Selector..... LW, MW, FM AUTO
6. Power Switch ..... ON
7. Tape Monitor..... Source
8. Output of signal generator should be no higher than necessary to obtain output reading.
9. Make certain that speaker system is connected to the receiver when aligning.

STEP	SIGNAL GENERATOR OR SWEEP GENERATOR		RADIO DIAL SETTING	INDICATOR (VTVM or SCOPE)	ADJUST	REMARKS
	CONNECTION	FREQUENCY				
AM-IF AND RF ALIGNMENT						
1 (AM)	Fashion loop of several turns of wire and radiate signal into loop of receiver.	470 kHz (UK) 455 kHz (Except UK) 30% Mod. with 400 Hz	Point of non-interference (on/ about 600 kHz)	Output meter across speaker jack (L)	T201 (AM 1st IFT) T202 (AM 2nd IFT) T203 (AM 3rd IFT)	Adjust for maximum output.
2 (LW)	Fashion loop of several turns of wire and radiate signal into loop of receiver.	145 kHz 30% Mod. with 400 Hz	145 kHz (14.9 mm)	Output meter across speaker jack (L)	L202 (LW ANT Coil) L204 (LW OSC Coil)	Adjust for maximum output by sliding coil L202 along ferrite core.
3 (LW)	Fashion loop of several turns of wire and radiate signal into loop of receiver.	350 kHz 30% Mod. with 400 Hz	350 kHz (198.6 mm)	Output meter across speaker jack (L)	CT202 (LW ANT Trimmer) CT204 (LW OSC Trimmer)	Adjust for maximum output. Repeat steps (2) and (3).
4 (MW)	Fashion loop of several turns of wire and radiate signal into loop of receiver.	550 kHz 30% Mod. with 400 Hz	550 kHz (22.0 mm)	Output meter across speaker jack (L)	L201 (MW ANT Coil) L203 (MW OSC Coil)	Adjust for maximum output by sliding coil L201 along ferrite core.
5 (MW)	Fashion loop of several turns of wire and radiate signal into loop of receiver.	1500 kHz 30% Mod. with 400 Hz	1500 kHz (191.1 mm)	Output meter across speaker jack (L)	CT201 (MW ANT Trimmer) CT203 (MW OSC Trimmer)	Adjust for maximum output. Repeat steps (4) and (5).
Note: Cement antenna coil with wax after completing alignment.						
FM-IF AND DETECTOR ALIGNMENT						
1	High side through 0.001μF to point TP101 and TP102 (earth).	10.7 MHz (400 kHz SWP.)	Point of non-interference (on/ about 98 MHz)	Connect vert. amp. input of scope to point TP201 and TP203 (earth).	T101 (FM 1st IFT) T204 (FM Disc. IFT)	Adjust for maximum amplitude and symmetrical curve. 
2	High side through 0.001μF to point TP101 and TP102 (earth).	10.7 MHz (400 kHz SWP.)	Point of non-interference (on/ about 98 MHz)	Connect vert. amp. input of scope to point TP201 and TP203 (earth).	T205 (FM Disc. IFT)	Adjust for maximum amplitude and proper linearity between about ±100 kHz markers. 
Note: Before aligning step 1, turn the cores of T204 fully counterclockwise.						
FM-RF ALIGNMENT						
1	Connect to EXT. FM antenna terminal through Dummy antenna. Common to earth.	90 MHz 30% Mod. with 400 Hz	90 MHz (29.0 mm)	Output meter across speaker jack (L)	L101 (FM ANT Coil) L102 (FM COL Coil) L104 (FM OSC Coil)	Adjust for maximum output.
2	Connect to EXT. FM antenna terminal through Dummy antenna. Common to earth.	106 MHz 30% Mod. with 400 Hz	106 MHz (181.1 mm)	Output meter across speaker jack (L)	CT101 (FM ANT Trimmer) CT102 (FM COL Trimmer) CT103 (FM OSC Trimmer)	Adjust for maximum output. Repeat steps (1) and (2).
Note: 1. As three output readings will be present, adjustments must be made at center frequency. **2. To correct drift at the FM dial scale (87.5 or 108 MHz), adjust coil L104 and trimmer CT103 with each other.**						

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ALIGNMENT INSTRUCTIONS (RADIO)–3

■ FM Stereo Alignment

Notes: Tuner: Volume Control ..... Audible level of speaker sound
Treble Control ..... MIN
Bass Control..... Center
Function Selector ..... FM AUTO
Balance Control..... Center

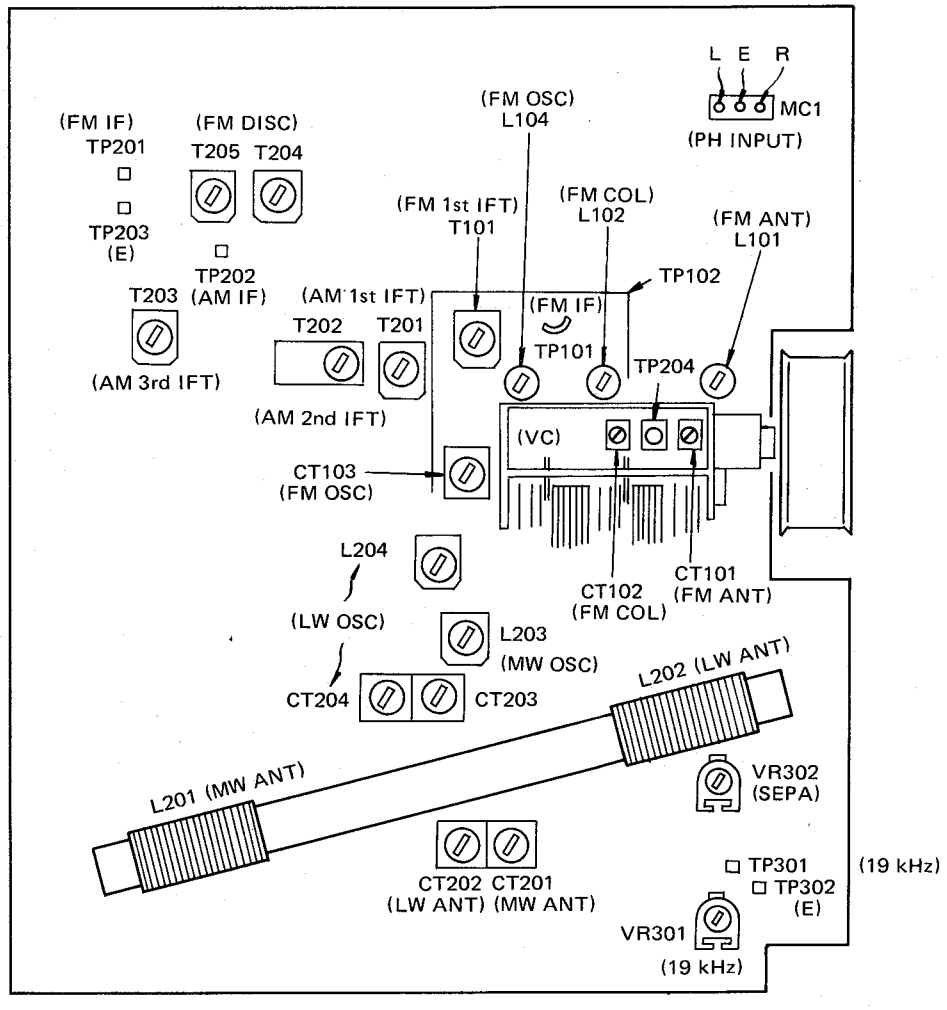
EQUIPMENT CONNECTION	ADJUST	REMARKS
Control frequency counter to TP301 and TP302 at 98 MHz, 30% modulation 60 dB input.	VR301 (VCO)	Adjust VR301 for 19 kHz ± 50 Hz on frequency counter reading.

SEPARATION ALIGNMENT

Notes:
1. Stereo Modulator: Connect Stereo Modulator to EXT. Mod. terminal of signal generator.
2. Signal Generator: Modulation Rate of 19 kHz Pilot Signal 10%
Modulation Rate of Right and Left Signal 27%
Output Level..... 60 dB
3. Tuner (Balance Control): Adjust balance control so that output level from both channels becomes equal.

EQUIPMENT CONNECTION			ADJUST	REMARKS
SIGNAL GENERATOR	VTVM	OSCILLOSCOPE		
Connect to EXT. FM antenna terminal through dummy antenna.	Connect across speaker jack.	Connect vertical amp. input of scope to terminals of VTVM.	VR301 (Separation Control)	Adjust VR302 for minimum indication of VTVM from the left side output when the right side of stereo modulator is modulated. Adjust VR302 in the same way for the right side. Adjust for best balance between "L to R" and "R to L" separation.

Note: When aligning separation, disconnect frequency counter.



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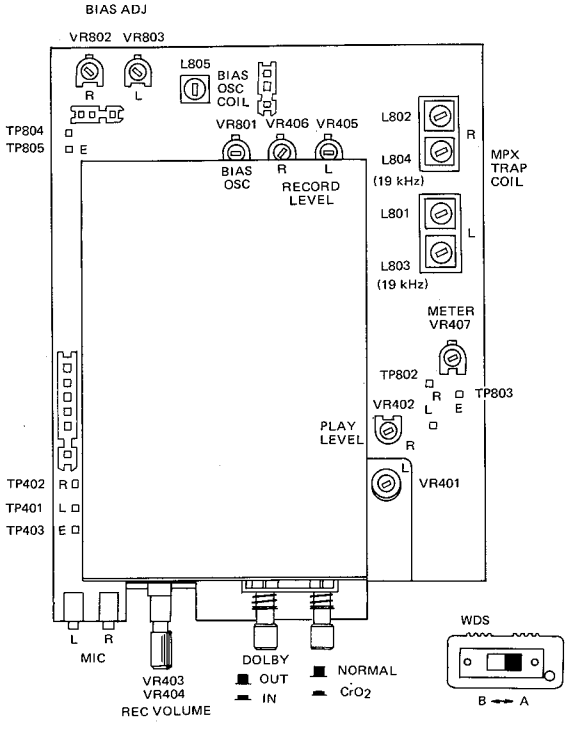
ALIGNMENT INSTRUCTIONS (CASSETTE DECK)

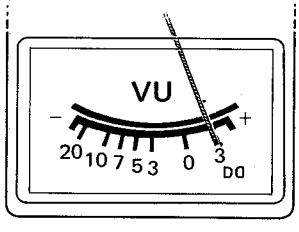
Notes: 1. Function Selector ..... TAPE
2. Balance Control..... Center
3. Depress push buttons PLAY and REC at the same time. (Be sure to release the record safety lever manually.
4. Dolby Switch..... OUT

STEP	CIRCUITS	VTVM CONNECTION (Refer to Alignment Points.)	TAPE SELECTOR	ADJUSTMENT	REMARKS
1	AC BIAS CIRCUIT	Connect positive side to TP804 (+) and negative side to TP805 (−).	Bias SW: Normal	L805	Adjust L805 for maximum indication on VTVM. WDS "B" side.
2	AC BIAS CIRCUIT	Connect positive side to TP804 and negative side to TP805.	Bias SW: CrO_2	VR801	Adjust VR801 for 12V reading on VTVM. WDS "A" side.
3	AC BIAS CIRCUIT	Connect positive side to TP401 and negative side to TP403.	Bias SW: Normal	VR803	Adjust VR803 and VR802 for 3.3mV reading on VTVM. WDS "A" side.
		Connect positive side to TP402 and negative side to TP403		VR802	
4	19 kHz TRAP CIRCUIT	Connect positive side to TP801 and negative side to TP803.	EQ SW: Normal and Tape Deck: Record	L803	Push Tape Monitor SW to Ext Tape and Dolby SW to IN. Apply audio signal (300 mV, 19 kHz) to both L-ch and R-ch Ext Tape terminals. Adjust L803 and L804 for minimum indication on VTVM.
		Connect positive side to TP802 and negative side to TP803.		L804	
5	DOLBY CIRCUIT	Connect positive side to TP801 and negative side to TP803.	EQ SW: Normal	VR401	Turn Dolby SW to IN and playback a test tape (MTT-150). Adjust VR401 and VR402 for 580 mV reading on VTVM.
		Connect positive side to TP802 and negative side to TP803.		VR402	
6	VU METER CIRCUIT	.....	EQ SW: Normal	VR407	Turn Dolby SW to IN and playback a test tape (MTT-150). Adjust VR407 so that needle rests at +3 dB (DD mark) as shown in VU meter.
7	REC CURRENT CIRCUIT	Connect positive side to TP401 and negative side to TP403.	EQ SW: Normal and Tape Deck: Record	VR405	Connect TP804 to TP805. Push Tape Monitor SW to Ext Tape and Dolby SW to IN. Apply 1 kHz audio signal to both Ext Tape terminals and set body REC VR's at **+3 dB** (DD mark) on VU meter. Adjust VR405 and VR406 for 0.67 mV reading on VTVM.
		Connect positive side to TP402 and negative side to TP403.		VR406	

Notes: **1. Do not touch R/P Head and Erase Head when aligning.**
2. L801 and L802 are pre-aligned. Do not touch them.
3. MTT-150 is DOLBY LEVEL calibration tape.

ALIGNMENT POINTS



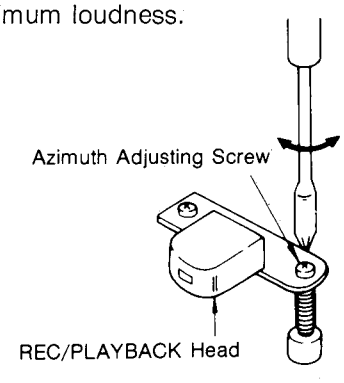


VU METER

RECORD/PLAYBACK HEAD AZIMUTH ADJUSTMENT

Playback a Standard Alignment Tape and turn Azimuth Adjusting Screw for maximum loudness.

*** Test Tape (6.3 kHz)**
VTT-652 or Equivalent

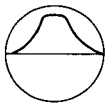
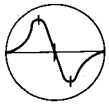


FRENCH

INSTRUCTIONS DE CALIBRAGE (RADIO) – 2

Nota:

1. Contrôle de volume: Au maximum (AM-IF et RF, FM-RF)
   Au minimum (FM-IF)
2. Correcteur des graves: Au centre
3. Correcteur des aigus: Au centre
4. Contrôle de balance: Au centre
5. Sélecteur de gamme: LW, MW, FM AUTO
6. Interrupteur général: ON
7. Contrôle de bande: Source
8. La sortie du générateur de signaux ne doit pas être supérieure à celle nécessaire pour obtenir la lecture de sortie.
9. S'assurer que les enceintes sont raccordées au tuner quand on effectue le calibrage.

ÉTAPE	GÉNÉRATEUR DE SIGNAUX OU DE BALAYAGE		RÉGLAGE CADRAN RADIO	INDICATEUR (VTVM OU SCOPE)	AJUSTAGE	REMARQUES
	CONNEXION	FRÉQUENCE				
CALIBRAGE AM-IF ET RF						
1 (AM)	Façonner une boucle de quelques tours de fil et rayonner le signal dans la boucle du récepteur	470 kHz (UK) 455 kHz (Sans UK) Mod. 30% à 400 Hz	Point de non interférence (sur/environ 600 kHz)	Indicateur de sortie au travers du jack (G) de haut-parleur	T201 (1ère IFT AM) T202 (2è IFT AM) T203 (3è IFT AM)	Ajuster jusqu'à obtenir la sortie maximale
2 (LW)	Façonner une boucle de quelques tours de fil et rayonner le signal dans la boucle du récepteur	145 kHz Mod. 30% à 400 Hz	145 kHz (14,9 mm)	Indicateur de sortie au travers du jack (G) de haut-parleur	L204 (Bobine LOW OSC) L202 (Bobine LW OSC)	Ajuster L202 le long du noyau de ferrite jusqu'à obtenir la sortie maximum.
3 (LW)	Façonner une boucle de quelques tours de fil et rayonner le signal dans la boucle du récepteur	350 kHz Mod. 30% à 400 Hz	350 kHz (198,6 mm)	Indicateur de sortie au travers du jack (G) de haut-parleur	CT204 (Trimmer LW OSC) CT202 (Trimmer LW OSC)	Ajuster jusqu'à obtenir la sortie maximum. Répéter les opérations 2 et 3.
4 (MW)	Façonner une boucle de quelques tours de fil et rayonner le signal dans la boucle du récepteur	550 kHz Mod. 30% à 400 Hz	550 kHz (22,0 mm)	Indicateur de sortie au travers du jack (G) de haut-parleur	L203 (Bobine MW OSC) L201 (Bobine MW ANT)	Ajuster L201 le long du noyau de ferrite jusqu'à obtenir la sortie maximum.
5 (MW)	Façonner une boucle de quelques tours de fil et rayonner le signal dans la boucle du récepteur	1500 kHz Mod. 30% à 400 Hz	1500 kHz (191,1 mm)	Indicateur de sortie au travers du jack (G) de haut-parleur	CT203 (Trimmer) MW OSC) CT201 (Trimmer MW OSC)	Ajuster de sorte à obtenir la sortie maximum. Répéter les opérations (4) et (5).
Nota: Bloquer la bobine d'antenne avec de la cire après avoir terminé le calibrage.						
CALIBRAGE DE FM-IF ET DU DÉTECTEUR						
1	Côté haut à travers 0,001μF à point TP101 et TP102 (masse)	10,7 MHz (balayage 400 Hz)	Point de non interférence (sur/environ 98 MHz)	Connecter l'amp. vert. de l'oscilloscope à TP201 et TP203 (masse)	T101 (1ère IFT FM) T204 (Disc. IFT FM)	Ajuster de sorte à obtenir l'amplitude maximum et une maximum et une courbe symétrique. 
2	Côté haut à travers 0,001μF à point TP101 et TP102 (masse)	10,7 MHz (balayage 400 Hz)	Point de non interférence (sur/environ 98 MHz)	Connecter l'amp. vert. de l'oscilloscope à TP201 et TP203 (masse)	T205 (Disc. IFT FM)	Ajuster de sorte à obtenir l'amplitude maximum et une bonne linéarité entre repères de 100 kHz. 
Nota: Avant l'opération 1, tourner le noyau de T205 à fond à gauche.						

INSTRUCTIONS DE CALIBRAGE (RADIO) – 3

ÉTAPE	GÉNÉRATEUR DE SIGNAUX OU DE BÀLAYAGE		RÉGLAGE CADRAN RADIO	INDICATEUR (VTVM OU SCOPE)	AJUSTAGE	REMARQUES
	CONNEXION	FRÉQUENCE				
CALIBRAGE FM-RF						
1	Connecter à la borne d'antenne EXT. FM à travers fausse antenne. Commun au châssis.	90 MHz Mod. 30% à 400 Hz	90 MHz (29,0 mm)	Indicateur de sortie au travers du jack (G) de haut-parleur	L104 (Bobine FM OSC) L101 (Bobine FM ANT) L102 (Bobine FM COL)	Ajuster de sorte à obtenir la sortie maximum.
2	Connecter à la borne d'antenne EXT. FM à travers fausse antenne. Commun au châssis.	106 MHz Mod. 30% à 400 Hz	106 MHz (181,1 mm)	Indicateur de sortie au travers du jack (G) de haut-parleur	CT103 (Trimmer FM OSC) CT101 (Trimmer FM ANT) CT102 (Trimmer FM COL)	Ajuster de sorte à obtenir la sortie maximum. Répéter les opérations 1 et 2.

Nota: **1. Vu qu'on obtiendra trois lectures de sortie, il faudra effectuer le calibrage à la fréquence centrale.**
2. Pour corriger la dérive de l'échelle FM du cadran (87,5 à 108 MHz), adapter ensemble la bobine L104 et le trimmer CT103.

■ CALIBRAGE FM STÉRÉO

Nota: Bloc d'accord:
Contrôle de volume ..... Volume audible par les haut-parleurs
Correcteur des aigus ..... MIN
Correcteur des graves ..... Au centre
Sélecteur de fonction..... FM AUTO
Contrôle de balance ..... Au centre

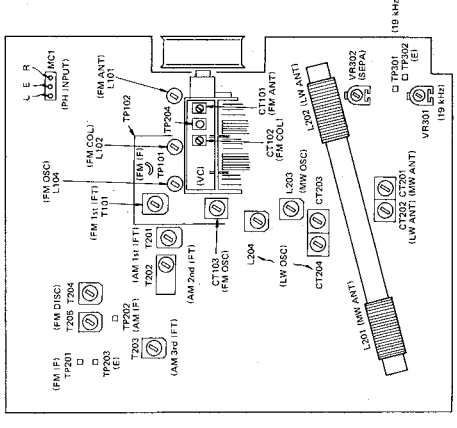
CONNEXION DE L'ÉQUIPEMENT	AJUSTER	REMARQUES
Connecter le compteur de fréquence à TP301 et TP302 (masse) à 98 MHz, mod. de 30%, entrée de 60 dB.	VR301 (VCO)	Ajuster VR301 pour une lecture de 19 kHz ± 50 Hz sur le compteur de fréquence.

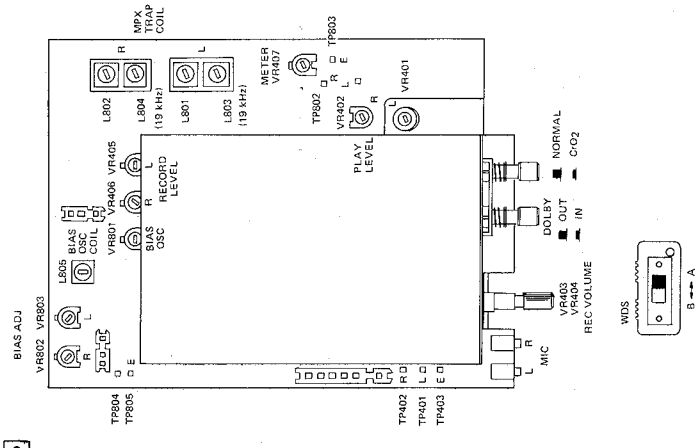
CALIBRAGE DE LA DIAPHONIE

Nota:
1. Modulateur stéréo: Connecter le modulateur stéréo à la borne Ext. mod. du générateur de signaux.
2. Générateur de signaux: Taux de modulation du signal pilote de 19 kHz..... 10%
Taux de modulation des signaux droite et gauche 27%
Niveau de sortie..... 60 dB
3. Tuner (contrôle de balance): Régler le contrôle de balance de sorte que la sortie des deux canaux soit égale.

CONNEXION DE L'ÉQUIPEMENT			AJUSTER	REMARQUES
GÉNÉRATEUR DE SIGNAUX	VTVM	OSCILLOSCOPE		
Connecter à la borne d'antenne EXT. FM au travers d'une fausse antenne	Connecter au travers du jack de haut-parleur	Connecter l'entrée d'amp. vert. aux bornes du VTVM	VR302 (contrôle diaphonie)	Ajuster VR302 de sorte à obtenir l'indication minimum du VTVM de sortie gauche en cas de modulation du côté droit par le modulateur. Ajuster VR302 de même manière du côté droit. Ajuster de sorte à obtenir le meilleur équilibre de diaphonie entre gauche-droite et droite-gauche.

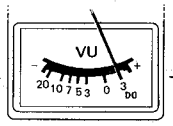
Nota: Lors du calibrage de la diaphinie, débrancher le compteur de fréquence.





INSTRUCTIONS DE CALIBRAGE (LECTEUR-ENREGISTREUR DE CASSETTE)

Nota:
1. Sélecteur de fonction sur TAPE.
2. Contrôle de balance en position centrale.
3. Presser simultanément les touches PLAY et REC (S'assurer de libérer manuellement le levier de sécurité d'enregistrement.
4. Interrupteur Dolby sur OUT.

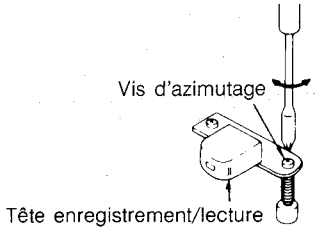
ÉTAPE	CIRCUITS	CONNEXION VTVM (Se reporter aux points de calibrage)	SÉLECTEUR DE BANDE	AJUSTAGE	REMARQUES
1	CIRCUIT DE PREMAGNETISATION CA	Connecter le côté positif à TP804(+) et le côté négatif à TP805(−).	Sél. de prémagnétisation: Normal	L805	Ajuster L805 jusqu'à obtenir l'indication maximale sur le VTVM. WDS "Côté B".
2	CIRCUIT DE PREMAGNETISATION CA	Connecter le côté positif à TP804, et le côté négatif à TP805.	Sél. de prémagnétisation: CrO_2	VR801	Ajuster VR801 jusqu'à obtenir 12V au VTVM. WDS "Côté A"
3	CIRCUIT DE PREMAGNETISATION CA	Connecter le côté positif à TP401 et le côté négatif à TP403.	Sél. de prémagnétisation: Normal	VR803	Ajuster VR803 et VR802 jusqu'à obtenir 3,3 mV au VTVM. WDS "Côté A".
		Connecter le côté positif à TP402 et le côté négatif à TP403.		VR802	
4	CIRCUIT PIEGE 19 kHz	Connecter le côté positif à TP801 et le côté négatif à TP803.	Sél. d'égalisation: Normal Lecteur sur et enregistrement	L803	Placer l'int. de contrôle de bande sur Ext Tape, et Dolby sur IN. Injecter un signal son (300 mV et 19 kHz) aux bornes Tape extérieures, canaux gauche et droit. Ajuster L803 et L804 jusqu'à obtenir l'indication minimum sur le VTVM.
		Connecter le côté positif à TP802 le côté négatif à TP803.		L804	
5	CIRCUIT DOLBY	Connecter le côté positif à TP801, et le côté négatif à TP803.	Sél. d'égalisation: Normal	VR401	Engager le Dolby et reproduire une bande étalon (MTT-150). Ajuster VR401 et VR402 pour obtenir 580 mV sur le VTVM.
		Connecter le côté positif à TP802, et le côté négatif à TP803.		VR402	
6	CIRCUIT VU-METRE	.....	Sél. d'égalisation: Normal	VR407	Engager le Dolby et reproduire la bande étalon (MTT-150). Ajuster VR407 de sorte que l'aiguille arrive à +3 dB (repère ▯▯) du VU-mètre. 
7	CIRCUIT D'ENREGISTREMENT	Connecter le côté positif à TP401, et le côté négatif à TP403.	Sél. d'égalisation: Normal et Lecteur sur enregistrement	VR405	Relier TP804 à TP805. Mettre le contrôle de bande sur Ext Tape et le Dolby. Injecter un signal son de 1 kHz aux deux bornes Ext Tape. Régler les VR de REC à +3 dB (▯▯) sur le VR-mètre. Ajuster VR405 et VR406 pour avoir 0,67 mV sur le VTVM.
		Connecter le côté positif à TP402, et le côté négatif à TP403.		VR406	

Nota:
1. **Lors du calibrage, ne pas toucher aux têtes d'enr/lect. et d'effacement.**
2. **Les L801 et L802 sont pré-calibrés. Ne pas y toucher.**
3. **La MTT-150 est la bande étalon au NIVEAU DOLBY.**

AZIMUTAGE DE LA TÊTE D'EBREGISTREMENT/LECTURE

Reproduire une bande étalon et tourner la vis d'azimutage jusqu'à obtenir le niveau maximal.

* **Bande étalon (6,3 kHz)**
VTT-652 ou équivalent

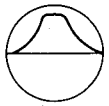
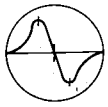


GERMAN

ANWEISUNGEN ZUM ABGLEICH (RADIO) – 2

Hinweise:

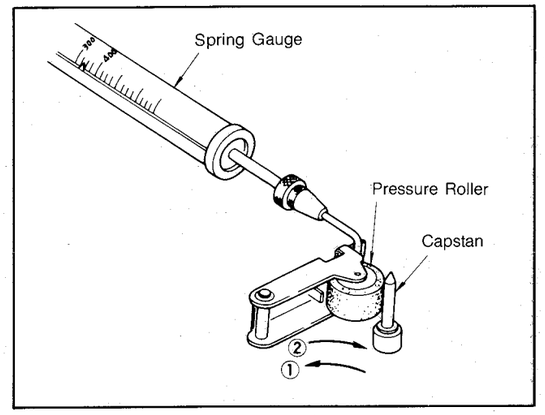
1. Lautstärkeregler ..... Maximum (AM-ZF und HF, FM-HF)
   Minimum
2. Baßregler ..... Mitte
3. Höhenregler ..... Mitte
4. Balanceregler ..... Mitte
5. Tonbandwahlschalter ..... LW, MW, UKW-Stereo
6. Netzschalter ..... Ein
7. Bandmithörschalter ..... Klangquelle (SOURCE)
8. Der Ausgang des Meßsenders sollte nicht höher als nötig sein, um den Ausgangswert zu erhalten.
9. Vergewissern, ob die Lautsprecheranlage während des Abgleichs an den Tuner angeschlossen ist.

SCHRITT	MESSSENDER ODER WOBBELGENERATOR		EINSTELLUNG DER ABSTIMMSKALA	ANZEIGE (RVM oder SKOP)	EINSTELLEN	BEMERKUNGEN
	ANSCHLUSS	FREQUENZ				
AM-ZF-ABGLEICH und HF-ABGLEICH						
1 (AM)	Aus mehreren Drahtwindungen eine Schleife bilden und das Signal in die Schleife des Receivers abstrahlen.	470 kHz (UK) 455 kHz (ausnehmen UK) 30% Mod. mit 400 Hz	Punkt der Nichtinterferenz (auf/bei 600 kHz)	Ausgangmeßinstrument über Lautsprecherbuchse (L)	T201 (AM 1. Zwischenfrequenz-Übertrager) T202 (AM 2. Zwischenfrequenz-Übertrager) T203 (AM 3. Zwischenfrequenz-Übertrager)	Auf maximalen Ausgang einstellen
2 (LW)	Aus mehreren Drahtwindungen eine Schleife bilden und das Signal in die Schleife des Receivers abstrahlen	145 kHz 30% Mod. mit 400 Hz	145 kHz (14,9 mm)	Ausgangmeßinstrument über Lautsprecherbuchse (L)	L202 (LW (Antennenspule) L204 (LW Schwingspule)	Auf maximalen Ausgang einstellen durch Verschieben der Spule L202 entlang dem Ferritkern
3 (LW)	Aus mehreren Drahtwindungen eine Schleife bilden und das Signal in die Schleife des Receivers abstrahlen	350 kHz 30% Mod. mit 400 Hz	350 kHz (198,6 mm)	Ausgangmeßinstrument über Lautsprecherbachse (L)	CT202 (MW Antennen trimmer) CT204 (LW Schwing-Schwing-trimmer)	Auf maximalen Ausgang einstellen. Die schritte (2) und (3) wiederholen
4 (MW)	Ausmehreren Drahtwindungen eine Schleife bilden und das Signal in die Schleife des Receivers abstrahlen	550 kHz 30% Mod. mit 400 Hz	550 kHz (22,0 mm)	Ausgangmeßinstrument über Lautsprecherbuchse (L)	L201 (MW Antennenspule) L203 (MW Schwingspule)	Auf maximalen Ausgang einstellen. durch Verschieben der Spule L201 entlang dem Ferritkern
5 (MW)	Aus mehreren Drahtwindungen eine Schleife bilden und das Signal in die Schleife des Receivers abstrahlen	1500 kHz 30% Mod. mit 400 Hz	1500 kHz (191,1 mm)	Ausgangmeßinstrument über Lautsprecherbuchse (L)	CT201 (MW Antennentrimmer) CT203 (MW Schwingtrimmer)	Auf maximalen Ausgang einstellen. Die Schritte (4) und (5) wiederholen
Hinweis: Nach dem Abgleich die Antennenspule mit Wachs befestigen.						
FM-ZF-ABGLEICH und UF-ABGLEICH						
1	Über Hilfsantenne mit EXT FM Antennenklemme verbinden. An Chassis geerdet.	90 MHz 30% Mod. mit 400 Hz	90 Hz (29,0 mm)	Ausgangmeßinstrument über Lautsprecherbuchse (L)	L101 (FM Antennenspule) L102 (FM COL Spule) L104 (FM Schwingspule)	Auf maximalen Ausgang einstellen 
2	Über Hilfsantenne mit EXT-FM Antennenklemme verbinden. An Chassis geerdet.	106 MHz 30% Mod. mit 400 Hz	106 MHz (181,1 mm)	Ausgangmeßinstrument über Lautsprecherbuchse (L)	CT101 (FM Antennentrimmer) CT102 (FM COL Trimmer) CT103 (FM Schwingtrimmer)	Auf maximalen Ausgang einstellen. Schritte (1) und (2) widerholen. 
Hinweis: Vor dem Abgleich von Schritt 1 den Kern von T205 bis zum Anschlag gegen den Uhrzeigersinn drehen.						

MECHANICAL ADJUSTMENT OF CASSETTE DECK

PRESSURE ROLLER ADJUSTMENT

1. Switch set to PLAY. (Do not insert cassette.)
2. Hook Spring gauge to arm pressure rollers.

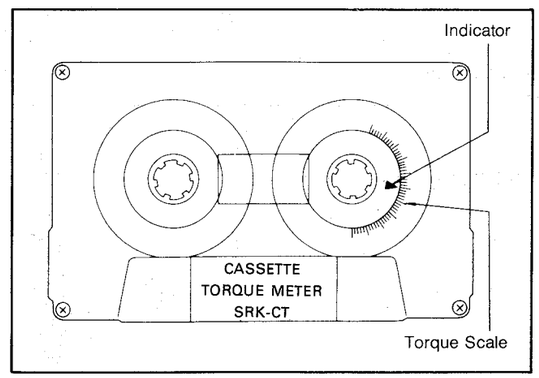


3. Pull pressure roller away from the capstan in the direction of arrow 1 with spring gauge and slowly permit the pressure roller to return forward capstan in the direction of arrow 2.
4. Measure tension at time when pressure roller makes contact with capstan (or when pressure roller starts rotating.)
5. The standard tension of pressure roller should be 250 ~ 380g.
6. If pressure is not within these limits;
   Clean the rubber roller and capstan with a soft cloth moistened with alcohol or replace pressure spring.

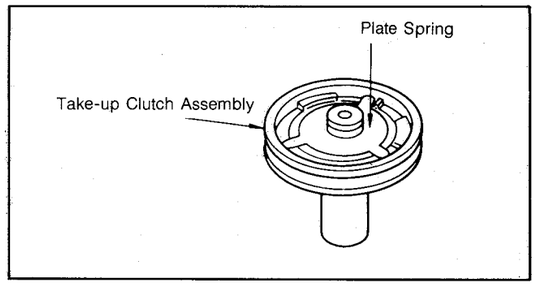
TAKE-UP TORQUE ADJUSTMENT

* Test Tape: SRK-CT (Take-up Torque Meter)

1. Insert test tape.
2. Rewind the tape to its starting point.
3. Switch set to PLAY.
4. Read "▶" mark of indicator on take-up side.



5. Repeat PLAY-STOP several times and read the average tension.
6. The standard take-up tension should be 30 ~ 70 g.cm. If take-up tension is not within these limits;
   a) Clean main belt, take-up reel and all parts which contact them with a cotton swab moistened with alcohol, and/or
   b) Switch set to "OFF", remove main belt and make sure that take-up reel and take-up clutch are rotating smoothly.
   c) Change take-up clutch tension by turning the friction spring under reel table, and/or
   d) Replace take-up clutch.



DOLBY NOISE REDUCTION SYSTEM–1

GENERAL DESCRIPTIION

The Dolby B-Type Noise Reduction System is used in this equipment, which reduces the level of background noise introduced during recording without changing the tone of audio signal.

METHOD OF DOLBY SYSTEM

Signal deviation of Dolby System is shown in Fig. 1.
Low level signal is recorded by boosting and is played back by attenuating as illustrated in the figure.
For example, following a level in Fig. 1:

1. When −30 dB REC signal is applied.
2. It is boosted to −20 dB and recorded on a magnetic head. [ENCODE]
3. Playing back this recorded tape (at −20 dB).
4. The output signal is boosted by Dolby System and reproduced at −30 dB, the same level as recorded. [RECODE]

Fig. 2 shows the boosting frequency characteristics. Generally, the signal deviation increases in proportion to the frequency.
At playback, the characteristics are curved symmetrically against the recording curve and the overall REC and PLAY curve flattens as shown in Fig. 3. This 0 dB is called Dolby Level, which is the flux level of the cassette tape and standardized at the point of 200 pwb/mm, and it is indicated by +3 VU on the VU meter of this equipment.

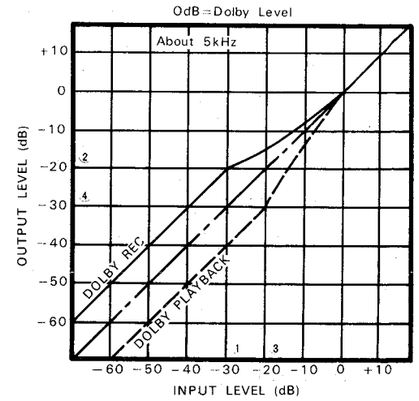


FIG. 1

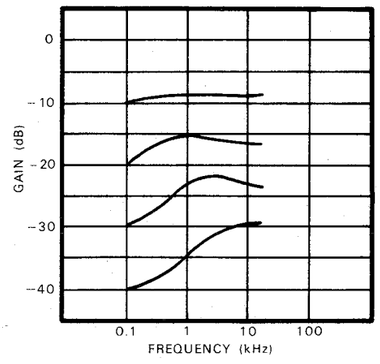


FIG. 2

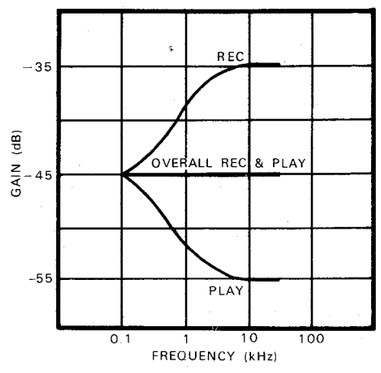


FIG. 3

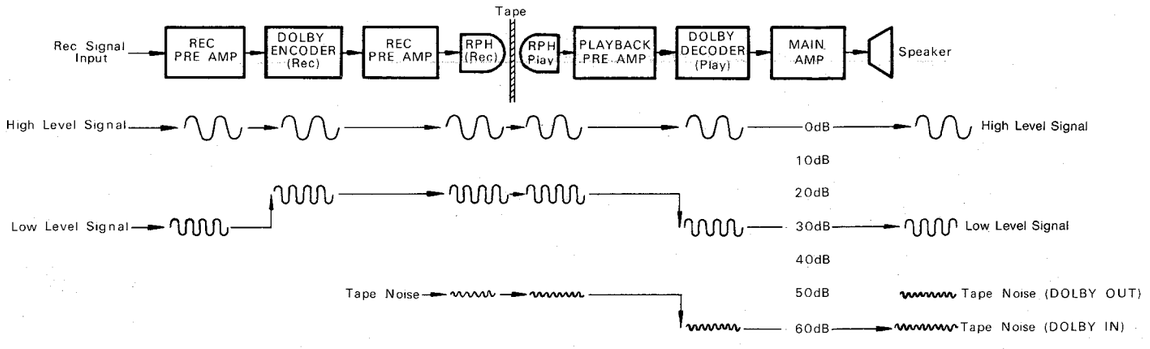


FIG. 4

GERMAN

ANWEISUNGEN ZUM ABGLEICH (RADIO) – 3

SCH-RITT	MESSSENDER ODER WOBBELGENERATOR		EINSTELLUNG DER ABSTIMM-SKALA	ANZEIGE (RVM oder SKOP)	EINSTELLEN	BEMERKUNGEN
	ANSCHLUSS	FREQUENZ				
FM-HF-ABGLEICH						
1	Über Hilfsantenne mit EXT FM Antennen-klemme verbinden. An chassis geerdet.	90 MHz 30% Mod. mit 400 Hz	90 MHz (29,0 mm)	Ausgangmeß-instrument über Lautsprecher-buchse (L)	L101 (FM Antennenspule) L102 (FM COL Spule) L104 (FM Schwingspule)	Auf maximalen Ausgang einstellen
2	Über Hilfsantenne mit EXT FM Antennen-klemme verbinden. An chassis geerdet.	106 MHz 30% Mod. mit 400 Hz	(106 MHz (181,1 mm)	Ausgangmeß-instrument über Lautsprecher-buchse (L)	CT101 (FM Antennen-trimmer) CT102 (FM COL Trimmer) CT103 (FM Schwing-trimmer)	Auf maximalen Ausgang einstellen. Schritt (1) und (2) wiederholen.

Hinweise:
1. **Da drei Ausgangswerte voliegen, müssen die Einstellungen auf der Mittenfrequenz vorgenommen werden.**
2. **Um den Drift auf der UKW FM Abstimmskala (87,5 oder 108 MHz) auszugleichen, Spule L104 und Trimmer CT103 aufeinander abstimmen.**

■ UKW-Stereoabgleich

Hinweise: Abstimmspule:
Lautstärkeregler ..... Hörpegel des Lautsprechertons
Höhenregler ..... MIN
Baßregler ..... Mitte
Eingangswahlschalter ..... UKW-Stereo
Balanceregler ..... Mitte

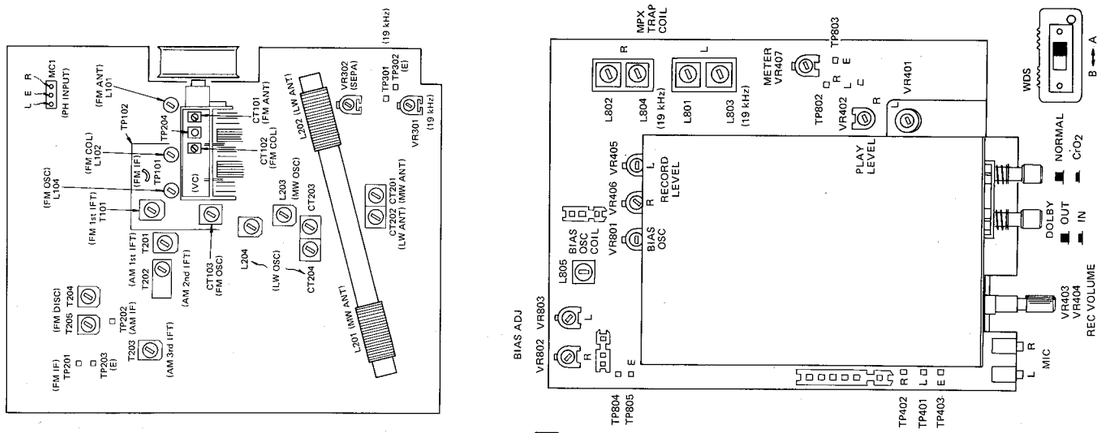
GERÄTEANSCHLUSS	EINSTELLEN	BEMERKUNGEN
Signalfrequenzmesser mit TP301 und TP302 (Erde) bei 98 MHz verbinden. Modulation 30%. Eingang 60 dB	VR301 (VCO)	VR301 auf dem Signalfrequenzmesser auf 19 kHz ± 50 Hz einstellen.

TRENNUNGSABGLEICH

Hinweise:
1. Stereomodulator: Stereomodulator mit EXT MOD Klemme des Meßsenders verbinden.
2. Meßsender: Modulationsgeschwindigkeit des 19 kHz Pilottons 10%
   Modulationsgeschwindigkeit des rechten und linken Signals 27%
   Ausgangspegel ..... 60 dB
3. Tuner (Balanceregler): Balanceregler so einstellen, daß die beiden Kanäle gleich sind.

GERÄTEANSCHLUSS			EINSTELLEN	BEMERKUNGEN
MESSSENDER	RVM	OSZILLOSKOP		
Über Hilfsantenne mit EXT FM Klemme der Antenne verbinden	Über Laut-sprecherbuchse anschließen	Vertikalen Verstärkereingang des Oszilloskops mit RVM-Klemmen verbinden	VR302 (Trennregler)	VR302 auf minimale RVM-Anzeige vom links-seitigen Ausgang einstellen, wenn die rechte Seite des Stereomodulators moduliert wird. VR302 auf gleiche Weise für die rechte Seite einstellen. Stereotrennung auf optimale Balance zwischen L-R und R-L einstellen.

Hinweis: Beim Abgleich der Stereotrennung der Signal-frequenzmesser abschalten.

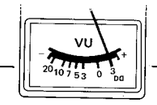


GERMAN

ANWEISUNGEN ZUM ABGLEICH (KASSETTEN-TAPEDECK)

Hinweise:
1. Eingangswahlschalter ..... Band
2. Balanceregler ..... Mitte
3. Wiedergabe- und Aufnahmetasten gleichzeitig drücken. (Darauf achten, den Aufnahmeschutzhebel manuell zu entriegeln.)
4. Dolby-Schalter ..... Aus

SCH-RITT	SCHALT-KREIS	RÖHRENVOLTMETER-(RVM) ANSCHLUSS (Vergleiche Regulierung-Illustration.)	BANDWAHL-SCHALTER	EINSTEL-LUNG	BEMERKUNGEN
1	Wechselstrom-Vormagnetisier-kreis	Positive Stie mit TP804 (+) und negative Seite mit TP805 (–) verbinden.	Vormagneti-sierschalter: Normal	L805	L805 auf maximale RVM-Anzeige einstellen. WDS Seite B
2	Wechselstrom-Vormagnetisier-kreis	Positive Seite mit TP804 (+) und negative Seite mit TP805 (–) verbinden.	Vormagneti-sierschalter: CrO_2	VR801	VR801 auf dem RVM Wert 12V einstellen. WDS Seite A
3	Wechselstrom-Vormagnetisier-kreis	Die positive Seite mit TP401 und die negative Seite mit TP403 verbinden.	Vormagneti-sierschalter: Normal	VR803	VR803 und VR802 auf dem RVM den Wert 3,3 mV einstellen. WDS Seite A.
		Die positive Seite mit TP402 und die negative Seite mit TP403 verbinden.		VR802	
4	19 kHz Sperrkreis	Die positive Seite mit TP801 und die negative Seite mit TP803 verbinden.	Entzerrungs-schalter: Normal Tapedeck: Aufnahme	L803	Bandmithörschalter auf EXT TAPE und den Dolby-Schalter auf EIN stellen. NF-Signal (300 mV, 19 kHz) an beide Klemmen EXT TAPE L-CH und R-CH anlegen. L803 und L804 auf minimale RVM-Anzeige einstellen.
		Die positive Seite mit TP802 und die negative Seite mit TP803 verbinden.		L804	
5	Dolby-Schaltung	Die positive Seite mit TP801 und die negative Seite mit TP803 verbinden.	Entzerrungs-schalter: Normal	VR401	Dolby-Schalter auf EIN stellen und ein Bezugsband (MTT-150) abspielen. VR401 und VR402 auf dem RVM auf einen Wert von 580 mV einstellen.
		Die positive Seite mit TP802 und die negative Seite mit TP803 verbinden.		VR402	
6	VU-Meter-Schaltkreis	.....	Entzerrungs-schalter: Normal	VR407	Dolby-Schalter auf EIN stellen und ein Bezugsband (MTT-150) abspielen. VR407 so einstellen, daß der Zeiger bei +3 dB (Zeichen) auf dem VU-Meter hält.
7	Aufnahme-stromkreis	Die positive Seite mit TP401 und die negative Seite mit TP403 verbinden.	Entzerrungs-schalter: Normal Tapedeck: Aufnahme	VR405	TP804 mit TP805 verbinden. Bandmit-hörschalter auf EXT TAPE und Dolby-Schalter auf EIN stellen. 1 kHz NF-Signal an beide EXT TAPE Klemmen anlegen und die Aufnahmespannungs-regler des Chassis auf +3 dB (Zeichen) auf dem VU-Meter einstellen. VR405 und VR406 auf dem RVM auf einen Wert von 0,67 mV einstellen.
		Die positive Seite mit TP402 und die negative Seite mit TP403 verbinden.		VR406	

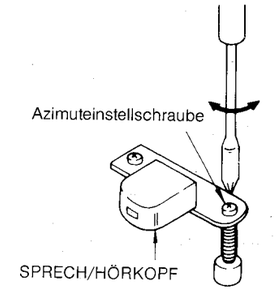


Hinweise:
1. **Beim Abgleich Sprech/Hörkopf und Löschkopf nicht berühren.**
2. **L801 und L802 sind bereits abgeglichen. Deshalb nicht berühren.**
3. **(MTT-15) ist das Eichband für den Dolby-Pegel.**

AZIMUTEINSTELLUNG FÜR SPRECH/HÖRKOPF

Ein Standardabgleichband abspielen und die Azimuteinstellschraube auf maximale Lautstärke drehen.

* **Bezugsband (6,3 kHz):**
VTT-652 oder entsprechende Type.



DOLBY NOISE REDUCTION SYSTEM–2

PRINCIPLE OF NOISE REDUCTION

Much of the audible noise of a tape recorder is a hiss noise of high and medium frequency created when recording on a magnetic tape while some of it is playback amplifier noise.
A high input signal level suppresses noise but a low input signal level decreases S/N ratio and noise is easily heard.
For solving this problem as shown in Fig. 4, the Dolby System operates by boosting a low-level, high and medium frequency approx. 10 dB when recording, and attenuating the same signal in a complementary manner during playback.
During this process, the hiss noise of high and medium frequency and the amplifier noise are suppressed approx. 10 dB.
Fig. 5 shows noise reduction in Dolby IN/OUT.

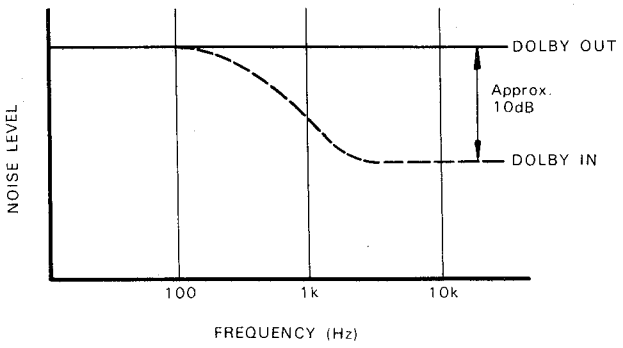


FIG. 5

CIRCUIT OPERATION

The operation of Noise Reduction System is shown in the block diagram of Fig. 6. By turning ST1, ST8, S10-4 and ST11 to REC/PLAY, this circuit operates on ENCODE/DECODE.
[ENCODE] : ST1, ST8 and ST11 in REC position.
Recording signal is applied to REC AMP and passes through AMP "A" of Dolby IC and the low-pass-filter "LPF", and then it enters AMP "B". LPF attenuates unwanted frequencies such as tape recorder bias or FM MPX sub. carrier signals to the level which will not influence the Dolby circuit operation. The output signal of AMP "B" is divided into two paths; one is directly supplied to ADDER "E", which is called a direct signal, while the other controls the noise reduction signal. This signal, passing through ST11, S10-4, high-pass-filter "HPF", variable resistance "F" and AMP "C", enters ADDER "E" and increases the direct signal.
As a result, REC signal from INVERTER "K" is boosted.
[DECODE] : Essentially the same circuitry.
ST1, ST8 and ST11 in PLAY position.
Playback signal from the playback head "RPH" is aplied to PLAYBACK PRE AMP and passes through ST8, AMP "A" of Dolby IC, "LPF" and AMP "B", and then it enters ADDER "E" as the direct signal. One part of output signal from INVERTER "K", passing through ST11, is supplied to MAIN AMP, and the other, as Noise Reduction Signal, passes through S10-4, "HPF".
Variable Resistance "F" and AMP "C", are applied to ADDER "E" in opposite phase. As a result, the level of the playback signal is attenuated. This circuit operates to boost at REC position [ENCODE] and to attenuate at PLAY position [DECODE].
"G" is the rectifying and smoothing circuit of Noise Reduction Signal and controls Variable Resistance "F". And "F" and "HPF" compose the dynamic high pass filter, and control the boosting and attenuating degree of high and medium frequency in response to the signal level (Figs. 2 and 3). "T" is the circuit setting the response time of Dolby.

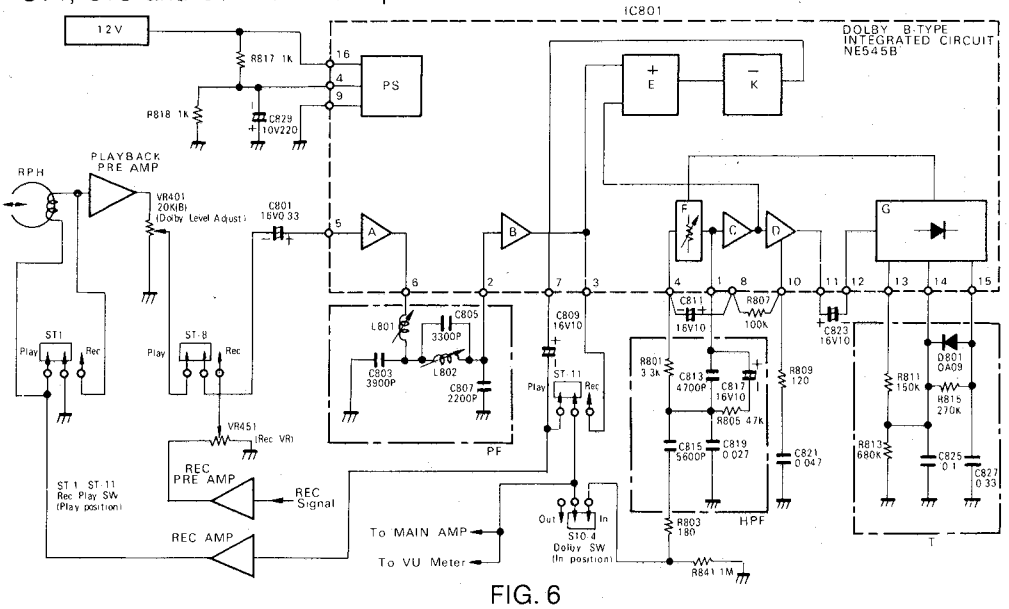


FIG. 6

REPLACEMENT PARTS LIST

NOTES:
1. Part numbers are indicated on most mechanical parts. Please use this part number for parts orders.
2. Part numbers composed by bold face are service standard parts and may differ from production parts.
3. Components identified by shaded area have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
4. The term "M. Film" is the abbreviation of Metal Film.
5. The ○ mark indicates the new parts of the factory.

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
TRANSISTORS				
TR101	2SK49	FM-RF Amp.	1	
TR102	2SC1675L	FM Osc.	1	
TR103	2SC1675L	FM Mix.	1	
TR201	2SC1359	AM Conv.	1	
TR401,402	2SC1327	Tape Equalizer	2	
TR403,404	2SC1327	Mic Amp.	2	
TR405,406	2SC828	Meter Amp.	2	
TR407,408	2SC1684	Muting	2	
TR409,410	2SC1684	Rec. Amp.	2	
TR411,412	2SC1327	Tape Equalizer	2	
TR413	2SC1684	Muting	1	
TR501,502	2SC1327	AF 1st Amp.	2	
TR503,504	2SC1684	AF 2nd Amp.	2	
TR601,602	2SC1327	Phono Equalizer	2	
TR603,604	2SC1327	Phono Equalizer	2	
TR801	2SB175	Bias Osc.	1	
TR802	2SB324	Bias Amp.	1	
TR803,804	2SC1684	Muting	2	
TR901	2SC1398	AVR	1	
INTEGRATED CIRCUITS				
IC201	AN217	FM, AM, IF Amp.	1	
IC301	LA3350A	MPX Decorder	1	
IC701	STK040	Power Amp.	1	
IC801,802	NE545B	Dolby Encoder/Decorder	2	

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
DIODES				
D101,102	2OA90	FM, AGC	2	
D103	SC-15	FM, AFC	1	
D201	2OA90	FM, AGC	1	
D202,203	20A90	FM, Det	2	
D204	2OA90	AM, AGC	1	
D301	MA161	Switching	1	
D302	LN22	Stereo Eye	1	
D401,402	2OA90	Rectifier	2	
D801,802	OA91	Rectifier	2	
D803	VD1121	AOC	1	
D806	LN22	Rec. Indicator	1	
D807	VD1121	Switching	1	
D901	10DC1	Rectifier	1	
D902	S1RBA10	Rectifier	1	
D903	S4VB10	Rectifier	1	
D904	MA1130	AVR	1	
THERMISTER AND METER				
TH801	RRT103	Thermister	1	
M1	SSM116	VU Meter	1	○
LAMPS AND FUSES				
PL1	XAMR34X500-1	Lamp, Meter	1	
PL2	SWE112	Lamp, Dial	1	
PL3	SWE112	Lamp, Dolby Eye	1	
F901,902	XBAS2A1004	Fuse	2	
F903,904	XBAS2A2001	Fuse	2	
F905	XBAS2A1004	Fuse	1	

REPLACEMENT PARTS LIST

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
		COILS AND TRANSFORMERS		
L101	SLA4N2-O	Ant. Coil, FM	1	
L102	SLD4N14-M	Coil, Collector	1	
L103	RLQY30S1-O	Coil, Trap	1	
L104	SL04N12-O	Osc. Coil, FM	1	
L105	SLQY11G-2	Coil, Choke	1	
L201,202	SLF6G30-O	Ferrite ANT, MW, LW	1	
L203	SLO2M2-M	Osc. Coil, MW	1	
L204	SLO1M6	Osc. Coil, LW	1	
L205	SLQY11G-2	Coil, Choke	1	
L401,402	SLQU222-2Y	Coil, Equalizer	2	
L403,404	SLQV393-4Y	Coil, Trap	2	
L405	ELQ5A9R	Coil, Choke	1	
L801,802	SLQC363-2K	Coil, MPX 19 kHz	2	
L803,804	SLQC233-2K	Coil, MPX 38 kHz	2	
L805	SLO9810-K	OSC, Coil Bias	1	
L806,807	ELQ250A999	Coil, Choke	2	
L901,902	SLQY35S-2S	Coil, RFC	2	
T101	RLI4M101	IFT, FM 1st	1	
T201	SLI2M102	IFT, AM 1st	1	
T202	RLI9W104P-M	IFT, AM 2nd (UK only)	1	
T202	RLI7W105Q-M	IFT, AM 2nd (Except UK)	1	
T203	RLI2M402	IFT, AM 3rd	1	
T204	RLI4M501-M	IFT, FM Disc	1	
T205	RLI4M502-M	IFT, FM Disc	1	
T801	SLT6E2-D	OPT, Bias Osc.	1	
T1	SLT5M70-W	Power Transformer	1	
CF201,202	RVFCF10M12CR	FM, Ceramic	2	
		COMPONENT COMBINATION		
Z201	EXA5DL04C	330pF × 3, 4.7kΩ × 2	1	
Z202	EXAF203Z471	0.01μF × 2, 470Ω	1	
Z901	EXNF2SL04C	0.01μF × 2	1	

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
		RESISTORS		
R101	**ERD25TJ104**	Carbon 100kΩ 1/4W ±5%	1	
R102	**ERD25TJ221**	Carbon 220Ω 1/4W ±5%	1	
R103	**ERD25TJ472**	Carbon 4.7kΩ 1/4W ±5%	1	
R104	**ERD25TJ102**	Carbon 1kΩ 1/4W ±5%	1	
R105	**ERD25TJ683**	Carbon 68kΩ 1/4W ±5%	1	
R106	**ERD25TJ104**	Carbon 100kΩ 1/4W ±5%	1	
R107	**ERD25TJ183**	Carbon 18kΩ 1/4W ±5%	1	
R108	**ERD25TJ100**	Carbon 10Ω 1/4W ±5%	1	
R109,110	**ERD25TJ224**	Carbon 220kΩ 1/4W ±5%	2	
R111	**ERD25TJ122**	Carbon 1.2kΩ 1/4W ±5%	1	
R201	**ERD25TJ221**	Carbon 220Ω 1/4W ±5%	1	
R202	**ERD25TJ331**	Carbon 330Ω 1/4W ±5%	1	
R203	**ERD25TJ332**	Carbon 3.3kΩ 1/4W ±5%	1	
R204	**ERD25TJ152**	Carbon 1.5kΩ 1/4W ±5%	1	
R205	**ERD25TJ102**	Carbon 1kΩ 1/4W ±5%	1	
R206	**ERD25TJ471**	Carbon 470Ω 1/4W ±5%	1	
R207	**ERD25TJ101**	Carbon 100Ω 1/4W ±5%	1	
R208	**ERD25TJ470**	Carbon 47Ω 1/4W ±5%	1	
R209	**ERD25TJ103**	Carbon 10kΩ 1/4W ±5%	1	
R211,212	**ERD25TJ102**	Carbon 1kΩ 1/4W ±5%	2	
R213,214	**ERD25TJ103**	Carbon 10kΩ 1/4W ±5%	2	
R215	**ERD25TJ151**	Carbon 150Ω 1/4W ±5%	1	
R216	**ERD25TJ332**	Carbon 3.3kΩ 1/4W ±5%	1	
R217	**ERD25TJ330**	Carbon 33Ω 1/4W ±5%	1	
R218	**ERD25TJ152**	Carbon 1.5kΩ 1/4W ±5%	1	
R219	**ERD25TJ470**	Carbon 47Ω 1/4W ±5%	1	
R220	**ERD25TJ102**	Carbon 1kΩ 1/4W ±5%	1	
R221	**ERD25TJ332**	Carbon 3.3kΩ 1/4W ±5%	1	
R222	**ERD25TJ682**	Carbon 6.8kΩ 1/4W ±5%	1	
R223,224	**ERD25TJ103**	Carbon 10kΩ 1/4W ±5%	2	
R225,226	**ERD25TJ103**	Carbon 10kΩ 1/4W ±5%	2	
R227	**ERD25TJ123**	Carbon 12kΩ 1/4W ±5%	1	
R228	**ERD25TJ103**	Carbon 10kΩ 1/4W ±5%	1	
R229	**ERD25TJ224**	Carbon 220kΩ 1/4W ±5%	1	
R230	**ERD25TJ333**	Carbon 33kΩ 1/4W ±5%	1	
R231	**ERD25TJ474**	Carbon 470kΩ 1/4W ±5%	1	
R232	**ERD25TJ221**	Carbon 220Ω 1/4W ±5%	1	
R301	**ERD25TJ103**	Carbon 10kΩ 1/4W ±5%	1	
R302	**ERD25TJ682**	Carbon 6.8kΩ 1/4W ±5%	1	

REPLACEMENT PARTS LIST

Ref. No.	Part No.	Description				Per Set (pcs.)	Remarks
R303	**ERD25TJ332**	Carbon	3.3kΩ	1/4W	±5%	1	
R304	**ERD25TJ221**	Carbon	220Ω	1/4W	±5%	1	
R305,306	**ERD25TJ104**	Carbon	100kΩ	1/4W	±5%	2	
R307,308	**ERD25TJ472**	Carbon	4.7kΩ	1/4W	±5%	2	
R309,310	**ERD25TJ472**	Carbon	4.7kΩ	1/4W	±5%	2	
R311,312	**ERD25TJ684**	Carbon	680kΩ	1/4W	±5%	2	
R313	**ERG1ANJ680**	M. Film	68Ω	1W	±5%	1	
R314	**ERD25TJ152**	Carbon	1.5kΩ	1/4W	±5%	1	
R401,402	**ERD25TJ100**	Carbon	10Ω	1/4W	±5%	2	
R403,404	**ERD25TJ104**	Carbon	100kΩ	1/4W	±5%	2	
R405,406	**ERD25TJ101**	Carbon	100Ω	1/4W	±5%	2	
R407,408	**ERD25TJ224**	Carbon	220kΩ	1/4W	±5%	2	
R409,410	**ERD25TJ103**	Carbon	10kΩ	1/4W	±5%	2	
R411,412	**ERD25TJ102**	Carbon	1kΩ	1/4W	±5%	2	
R413,414	**ERD25TJ682**	Carbon	6.8kΩ	1/4W	±5%	2	
R415,416	**ERD25TJ392**	Carbon	3.9kΩ	1/4W	±5%	2	
R417,418	**ERD25TJ334**	Carbon	330kΩ	1/4W	±5%	2	
R419	**ERD25TJ221**	Carbon	220Ω	1/4W	±5%	1	
R420	**ERD25TJ333**	Carbon	33kΩ	1/4W	±5%	1	
R421,422	**ERD25TJ224**	Carbon	220kΩ	1/4W	±5%	2	
R423,424	**ERD25TJ471**	Carbon	470Ω	1/4W	±5%	2	
R425,426	**ERD25TJ152**	Carbon	1.5kΩ	1/4W	±5%	2	
R427,428	**ERD25TJ222**	Carbon	2.2kΩ	1/4W	±5%	2	
R431,432	**ERD25TJ332**	Carbon	3.3kΩ	1/4W	±5%	2	
R433,434	**ERD25TJ334**	Carbon	330kΩ	1/4W	±5%	2	
R435,436	**ERD25TJ470**	Carbon	47Ω	1/4W	±5%	2	
R437,438	**ERD25TJ102**	Carbon	1kΩ	1/4W	±5%	2	
R439,440	**ERD25TJ471**	Carbon	470Ω	1/4W	±5%	2	
R441,442	**ERD25TJ102**	Carbon	1kΩ	1/4W	±5%	2	
R443,444	**ERD25TJ102**	Carbon	1kΩ	1/4W	±5%	2	
R445,446	**ERD25TJ103**	Carbon	10kΩ	1/4W	±5%	2	
R447,448	**ERD25TJ823**	Carbon	82kΩ	1/4W	±5%	2	
R451,452	**ERD25TJ332**	Carbon	3.3kΩ	1/4W	±5%	2	
R453,454	**ERD25TJ105**	Carbon	1MΩ	1/4W	±5%	2	
R455,456	**ERD25TJ682**	Carbon	6.8kΩ	1/4W	±5%	2	
R457,458	**ERD25TJ331**	Carbon	330Ω	1/4W	±5%	2	
R459,460	**ERD25TJ103**	Carbon	10kΩ	1/4W	±5%	2	
R461,462	**ERD25TJ104**	Carbon	100kΩ	1/4W	±5%	2	
R463	**ERD25TJ101**	Carbon	100Ω	1/4W	±5%	1	
R466	**ERD25TJ153**	Carbon	15kΩ	1/4W	±5%	1	
R467	**ERD25TJ103**	Carbon	10kΩ	1/4W	±5%	1	

Ref. No.	Part No.	Description				Per Set (pcs.)	Remarks
R468	**ERD25TJ104**	Carbon	100kΩ	1/4W	±5%	1	
R469	**ERG1ANJ151**	M. Film	150Ω	1W	±5%	1	
R471,472	**ERD25TJ333**	Carbon	33kΩ	1/4W	±5%	2	
R473,474	**ERD25TJ332**	Carbon	3.3kΩ	1/4W	±5%	2	
R501,502	**ERD25TJ155**	Carbon	1.5MΩ	1/4W	±5%	2	
R503,504	**ERD25TJ682**	Carbon	6.8kΩ	1/4W	±5%	2	
R505,506	**ERD25TJ681**	Carbon	680Ω	1/4W	±5%	2	
R507,508	**ERD25TJ683**	Carbon	68kΩ	1/4W	±5%	2	
R509,510	**ERD25TJ333**	Carbon	33kΩ	1/4W	±5%	2	
R511,512	**ERD25TJ683**	Carbon	68kΩ	1/4W	±5%	2	
R513,514	**ERD25TJ153**	Carbon	15kΩ	1/4W	±5%	2	
R515,516	**ERD25TJ332**	Carbon	3.3kΩ	1/4W	±5%	2	
R517,518	**ERD25TJ223**	Carbon	22kΩ	1/4W	±5%	2	
R519,520	**ERD25TJ222**	Carbon	2.2kΩ	1/4W	±5%	2	
R521,522	**ERD25TJ103**	Carbon	10kΩ	1/4W	±5%	2	
R523,524	**ERD25TJ155**	Carbon	1.5MΩ	1/4W	±5%	2	
R525,526	**ERD25TJ472**	Carbon	4.7kΩ	1/4W	±5%	2	
R527,528	**ERD25TJ331**	Carbon	330Ω	1/4W	±5%	2	
R529,530	**ERD25TJ682**	Carbon	6.8kΩ	1/4W	±5%	2	
R531,532	**ERD25TJ153**	Carbon	15kΩ	1/4W	±5%	2	
R533,534	**ERD25TJ153**	Carbon	15kΩ	1/4W	±5%	2	
R535	**ERD25TJ221**	Carbon	220Ω	1/4W	±5%	1	
R540	**ERD25TJ102**	Carbon	1kΩ	1/4W	±5%	1	
R601,602	**ERD25TJ683**	Carbon	68kΩ	1/4W	±5%	2	
R603,604	**ERD25TJ471**	Carbon	470Ω	1/4W	±5%	2	
R605,606	**ERD25TJ683**	Carbon	68kΩ	1/4W	±5%	2	
R607,608	**ERD25TJ102**	Carbon	1kΩ	1/4W	±5%	2	
R609,610	**ERD25TJ682**	Carbon	6.8kΩ	1/4W	±5%	2	
R611,612	**ERD25TJ682**	Carbon	6.8kΩ	1/4W	±5%	2	
R613,614	**ERD25TJ683**	Carbon	68kΩ	1/4W	±5%	2	
R615,616	**ERD25TJ222**	Carbon	2.2kΩ	1/4W	±5%	2	
R617,618	**ERD25TJ222**	Carbon	2.2kΩ	1/4W	±5%	2	
R619	**ERD25TJ333**	Carbon	33kΩ	1/4W	±5%	1	
R620	**ERD25TJ222**	Carbon	2.2kΩ	1/4W	±5%	1	
R621,622	**ERD25TJ102**	Carbon	1kΩ	1/4W	±5%	2	
R623,624	**ERD25TJ102**	Carbon	1kΩ	1/4W	±5%	2	
R701,702	**ERD25TJ102**	Carbon	1kΩ	1/4W	±5%	2	
R703,704	**ERD25TJ333**	Carbon	33kΩ	1/4W	±5%	2	
R705,706	**ERD25TJ271**	Carbon	270Ω	1/4W	±5%	2	
R707,708	**ERD25TJ333**	Carbon	33kΩ	1/4W	±5%	2	
R709,710	**ERD50TJ220**	Carbon	22Ω	1/2W	±5%	2	

REPLACEMENT PARTS LIST

Ref. No.	Part No.	Description				Per Set (pcs.)	Remarks
R711	**ERG1ANJ101**	M. Film	100Ω	1W	±5%	1	
R712	**ERG1ANJ471**	M. Film	470Ω	1W	±5%	1	
R713,714	**ERD50TJ331**	Carbon	330Ω	1/2W	±5%	2	
R801,802	**ERO25CKF3301**	Carbon	3.3kΩ	1/8W	±1%	2	
R803,804	**ERD25TJ181**	Carbon	180Ω	1/4W	±5%	2	
R805,806	**ERD25TJ473**	Carbon	47kΩ	1/4W	±5%	2	
R807,808	**ERD25TJ104**	Carbon	100kΩ	1/4W	±5%	2	
R809,810	**ERD25TJ121**	Carbon	120Ω	1/4W	±5%	2	
R811,812	**ERD25TJ154**	Carbon	150kΩ	1/4W	±5%	2	
R813,814	**ERD25TJ684**	Carbon	680kΩ	1/4W	±5%	2	
R815,816	**ERD25TJ274**	Carbon	270kΩ	1/4W	±5%	2	
R817,818	**ERD25TJ105**	Carbon	1MΩ	1/4W	±5%	2	
R821	**ERD25TJ220**	Carbon	22Ω	1/4W	±5%	1	
R822,823	**ERD25TJ102**	Carbon	1kΩ	1/4W	±5%	2	
R824	**ERD25TJ221**	Carbon	220Ω	1/4W	±5%	1	
R825	**ERD25TJ683**	Carbon	68kΩ	1/4W	±5%	1	
R826,827	**ERD25TJ221**	Carbon	220Ω	1/4W	±5%	2	
R828	**ERD25TJ102**	Carbon	1kΩ	1/4W	±5%	1	
R829	**ERG1ANJ101**	M. Film	100Ω	1W	±5%	1	
R830	**ERG1ANJ151**	M. Film	150Ω	1W	±5%	1	
R831	**ERD25TJ682**	Carbon	6.8kΩ	1/4W	±5%	1	
R838,839	**ERD25TJ102**	Carbon	1kΩ	1/4W	±5%	2	
R848,849	**ERD25TJ102**	Carbon	1kΩ	1/4W	±5%	2	
R901	**ERX1ANJ1R0**	M. Film	1Ω	1W	±5%	1	
R902	**ERG2ANJ151**	M. Film	150Ω	2W	±5%	1	
R903	**ERG1ANJ681**	M. Film	680Ω	1W	±5%	1	
R904	**ERD25TJ331**	Carbon	330Ω	1/4W	±5%	1	
R905	**ERQ12HJ150**	Carbon	15Ω	1/2W	±5%	1	○
R906	**ERG2ANJ151**	M. Film	150Ω	2W	±5%	1	
		CAPACITORS					
C102	**ECCD1H101K**	Ceramic	100pF	50WV	±10%	1	
C103	**ECKD1H223PF**	Ceramic	0.022μF	50WV	+100,−0%	1	
C104	**ECCD1H120K**	Ceramic	12pF	50WV	±10%	1	
C105	**ECKD1H223PF**	Ceramic	0.022μF	50WV	+100,−0%	1	
C106	**ECKD1H102MD**	Ceramic	0.001μF	50WV	±20%	1	
C107	**ECCD1H080D**	Ceramic	8pF	50WV	±0.5pF	1	

Ref. No.	Part No.	Description				Per Set (pcs.)	Remarks
C108	**ECKD1H102MD**	Ceramic	0.001μF	50WV	±20%	1	
C109	**ECCD1H070D**	Ceramic	7pF	50WV	±0.5pF	1	
C110	**ECCD1H040C**	Ceramic	4pF	50WV	±0.25pF	1	
C111	**ECKD1H102MD**	Ceramic	0.001μF	50WV	±20%	1	
C112	**ECCD1H220K**	Ceramic	22pF	50WV	±10%	1	
C113	**ECCD1H100K**	Ceramic	10pF	50WV	±10%	1	
C114	**ECCD1H1R5C**	Ceramic	1.5μF	50WV	±0.25pF	1	
C115	**ECCD1H100KV**	Ceramic	10pF	50WV	±10%	1	
C116	**ECCD1H050C**	Ceramic	5pF	50WV	±0.25pF	1	
C117	**ECCD1H070D**	Ceramic	7pF	50WV	±0.5pF	1	
C118	**ECKD1H223PF**	Ceramic	0.022μF	50WV	+100,−0%	1	
C202	**ECKD1H223PF**	Ceramic	0.022μF	50WV	+100,−0%	1	
C204	**ECCD1H050C**	Ceramic	5pF	50WV	±0.25pF	1	
C205	**ECKD1H223MD**	Ceramic	0.022μF	50WV	±20%	1	
C206	**ECKD1H223PF**	Ceramic	0.022μF	50WV	+100,−0%	1	
C207	**ECCD1H040C**	Ceramic	4pF	50WV	±0.25pF	1	
C208	**ECQS1152JZ**	Styrol	1500pF	100WV	±5%	1	
C209,210	**ECEA16V10**	Electrolytic	10μF	16WV		2	
C211	**ECKD1H223PF**	Ceramic	0.022μF	50WV	+100,−0%	1	
C213	**ECEA50V3R3**	Electrolytic	3.3μF	50WV		1	
C214	**ECEA16V10**	Electrolytic	10μF	16WV		1	
C215	**ECKD1H223PF**	Ceramic	0.022μF	50WV	+100,−0%	1	
C216	**ECAG16ER22**	Electrolytic	22μF	16WV		1	
C221	**ECCD1H330K**	Ceramic	33pF	50WV	±10%	1	
C222	**ECKD1H102MD**	Ceramic	0.001μF	50WV	±20%	1	
C223	**ECCD1H101K**	Ceramic	100pF	50WV	±10%	1	
C224	**ECCD1H220K**	Ceramic	22pF	50WV	±10%	1	
C225,226	**ECKD1H103MD**	Ceramic	0.01μF	50WV	±20%	2	
C227	**ECKD1H223MD**	Ceramic	0.022μF	50WV	±20%	1	
C228	**ECQS1361JZ**	Styrol	360pF	100WV	±5%	1	
C229	**ECQS1181JZ**	Styrol	180pF	100WV	±5%	1	
C230	**ECCD1H680J**	Ceramic	68pF	50WV	±5%	1	
C231	**ECCD1H040C**	Ceramic	4pF	50WV	±0.25pF	1	
C232,233	**ECKD1H102MD**	Ceramic	0.001μF	50WV	±20%	2	
C234	**ECKD1H222MD**	Ceramic	0.0022μF	50WV	±20%	1	
C235	**ECKD1H332MD**	Ceramic	0.0033μF	50WV	±20%	1	
C236	**ECEA16V10**	Electrolytic	10μF	16WV		1	
C237	**ECEA16V33**	Electrolytic	33μF	16WV		1	
C238	**ECCD1H040C**	Ceramic	4pF	50WV	±0.25pF	1	
C239	**ECCD1H331K**	Ceramic	330pF	50WV	±10%	1	
C301	**ECEA50V1**	Electrolytic	1μF	50WV		1	

REPLACEMENT PARTS LIST

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
C302	**ECQS1152JZ**	Styrol 150pF 100WV ±5%	1	
C303	**ECQM1H473MZ**	Polyester 0.047μF 50WV ±20%	1	
C304	**ECEA16V47**	Electrolytic 47μF 16WV	1	
C305	**ECAG16ER22**	Electrolytic 0.22μF 16WV	1	
C306	**ECAG16ER47**	Electrolytic 0.47μF 16WV	1	
C307	**ECEA50V1**	Electrolytic 1μF 50WV	1	
C308	**ECEA16V10**	Electrolytic 10μF 16WV	1	
C309,310	**ECKD1H472MD**	Ceramic 0.0047μF 50WV ±20%	2	
C311,312	**ECAG16ER1**	Electrolytic 0.1μF 16WV	2	
C313,314	**ECKD1H332MD**	Ceramic 0.0033μF 50WV ±20%	2	
C401,402	**ECQS1102JZ**	Styrol 1000pF 125WV ±5%	2	
C403,404	**ECEA16M10E**	Electrolytic 10μF 16WV	2	
C405,406	**ECKD1H102MD**	Ceramic 0.001μF 50WV ±20%	2	
C407,408	**ECEA16V10**	Electrolytic 10μF 16WV	2	
C409,410	**ECEA35V4R7**	Electrolytic 4.7μF 35WV	2	
C411,412	**ECQM1153MZ**	Polyester 0.015μF 50WV ±20%	2	
C415,416	**ECEA16V100**	Electrolytic 100μF 16WV	2	
C421,422	**ECEA50N1**	Electrolytic 1μF 50WV	2	
C423,424	**ECEA50V3R3**	Electrolytic 3.3μF 50WV	2	
C431,432	**ECAG16ER68**	Electrolytic 0.68μF 16WV	2	
C433,434	**ECEA50V1**	Electrolytic 1μF 50WV	2	
C435,436	**ECQM1H103MZ**	Polyester 0.01μF 50WV ±20%	2	
C437,438	**ECQM1H473MZ**	Polyester 0.047μF 50WV ±20%	2	
C439,440	**ECEA16V10**	Electrolytic 10μF 16WV	2	
C441,442	**ECQM1H472MZ**	Polyester 0.0047μF 50WV ±20%	2	
C443,444	**ECAG16ER1**	Electrolytic 0.1μF 16WV	2	
C445,446	**ECQM1H393MZ**	Polyester 0.039μF 50WV ±20%	2	
C447,448	**ECQM1H393MZ**	Polyester 0.039μF 50WV ±20%	2	
C451,452	**ECEA35V4R7**	Electrolytic 4.7μF 35WV	2	
C453,454	**ECKD1H102PF**	Ceramic 0.001μF 50WV +100,−0%	2	
C455,456	**ECAG16ER1**	Electrolytic 0.1μF 16WV	2	
C464	**ECEA35V220**	Electrolytic 220μF 35WV	1	
C466	**ECEA16V47**	Electrolytic 47μF 16WV	1	
C467	**ECEA16V10**	Electrolytic 10μF 16WV	1	
C468	**ECEA50V1**	Electrolytic 1μF 50WV	1	
C501,502	**ECEA50V1**	Electrolytic 1μF 50WV	2	
C503,504	**ECKD1H102PF**	Ceramic 0.001μF 50WV +100,−0%	2	
C505,506	**ECEA50V1**	Electrolytic 1μF 50WV	2	
C507,508	**ECKD1H223MD**	Ceramic 0.022μF 50WV ±20%	2	
C509,510	**ECQM1H683MZ**	Poolyester 0.068μF 50WV ±20%	2	

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
C511,512	**ECKD1H222MD**	Ceramic 0.0022μF 50WV ±20%	2	
C513,514	**ECKD1H153MD**	Ceramic 0.015μF 50WV ±20%	2	
C515,516	**ECEA50V1**	Electrolytic 1μF 50WV	2	
C517,518	**ECKD1H102PF**	Ceramic 0.001μF 50WV +100,−0%	2	
C519,520	**ECEA50V1**	Electrolytic 1μF 50WV	2	
C521,522	**ECAG16ER47**	Electrolytic 0.47μF 16WV	2	
C523	**ECEA16V470**	Electrolytic 470μF 16WV	1	
C524	**ECEA16V220**	Electrolytic 220μF 16WV	1	
C601,602	**ECAG16E1**	Electrolytic 1μF 16WV	2	
C603,604	**ECKD1H102PF**	Ceramic 0.001μF 50WV +100,−0%	2	
C605,606	**ECEA16V47**	Electrolytic 47μF 16WV	2	
C607,608	**ECQM1H103MZ**	Polyester 0.01μF 50WV ±20%	2	
C609,610	**ECQM1H333MZ**	Polyester 0.033μF 50WV ±20%	2	
C611,612	**ECEA50V1**	Electrolytic 1μF 50WV	2	
C613	**ECEA16V33**	Electrolytic 33μF 16WV	1	
C614	**ECEA10V100**	Electrolytic 100μF 10WV	1	
C615,616	**ECCD1H331K**	Ceramic 330pF 50WV ±10%	2	
C701,702	**ECKD1H102MD**	Ceramic 0.001μF 50WV ±20%	2	
C703,704	**ECEA50V2R2**	Electrolytic 2.2μF 50WV	2	
C705,706	**ECEA50V22**	Electrolytic 22μF 50WV	2	
C707,708	**ECCD1H080D**	Ceramic 8pF 50WV ±0.5pF	2	
C709,710	**ECEA35V47**	Electrolytic 47μF 35WV	2	
C711,712	**ECEA25V100**	Electrolytic 100μF 25WV	2	
C713,714	**ECQM1H473MZ**	Polyester 0.047μF 50WV ±20%	2	
C715,716	**ECEA35V10**	Electrolytic 10μF 35WV	2	
C717,718	**ECKD1H102PF**	Ceramic 0.001μF 50WV +100,−0%	2	
C801,802	**ECAG16ER33**	Electrolytic 0.33μF 16WV	2	
C803,804	**ECQS1392JZ**	Styrol 3900pF 125WV ±5%	2	
C805,806	**ECQS1332JZ**	Styrol 3300pF 125WV ±5%	2	
C807,808	**ECQS1222JZ**	Styrol 2200pF 125WV ±5%	2	
C809,810	**ECEA16V10**	Electrolytic 10μF 16WV	2	
C811,812	**ECEA16V10**	Electrolytic 10μF 16WV	2	
C813,814	**ECQS1472JZ**	Styrol 4700pF 125WV ±5%	2	
C815,816	**ECQS1562JZ**	Styrol 5600pF 125WV ±5%	2	
C817,818	**ECEA16V10**	Electrolytic 10μF 16WV	2	
C819,820	**ECQM1H273FZ**	Polyester 0.027μF 50WV ±1%	2	
C821,822	**ECQM1H473JZ**	Polyester 0.047μF 50WV ±5%	2	
C823,824	**ECEA16V10**	Electrolytic 10μF 16WV	2	
C825,826	**ECQM1H104KZ**	Polyester 0.1μF 50WV ±10%	2	
C827,828	**ECQM1H334KZ**	Polyester 0.33μF 50WV ±10%	2	

REPLACEMENT PARTS LIST

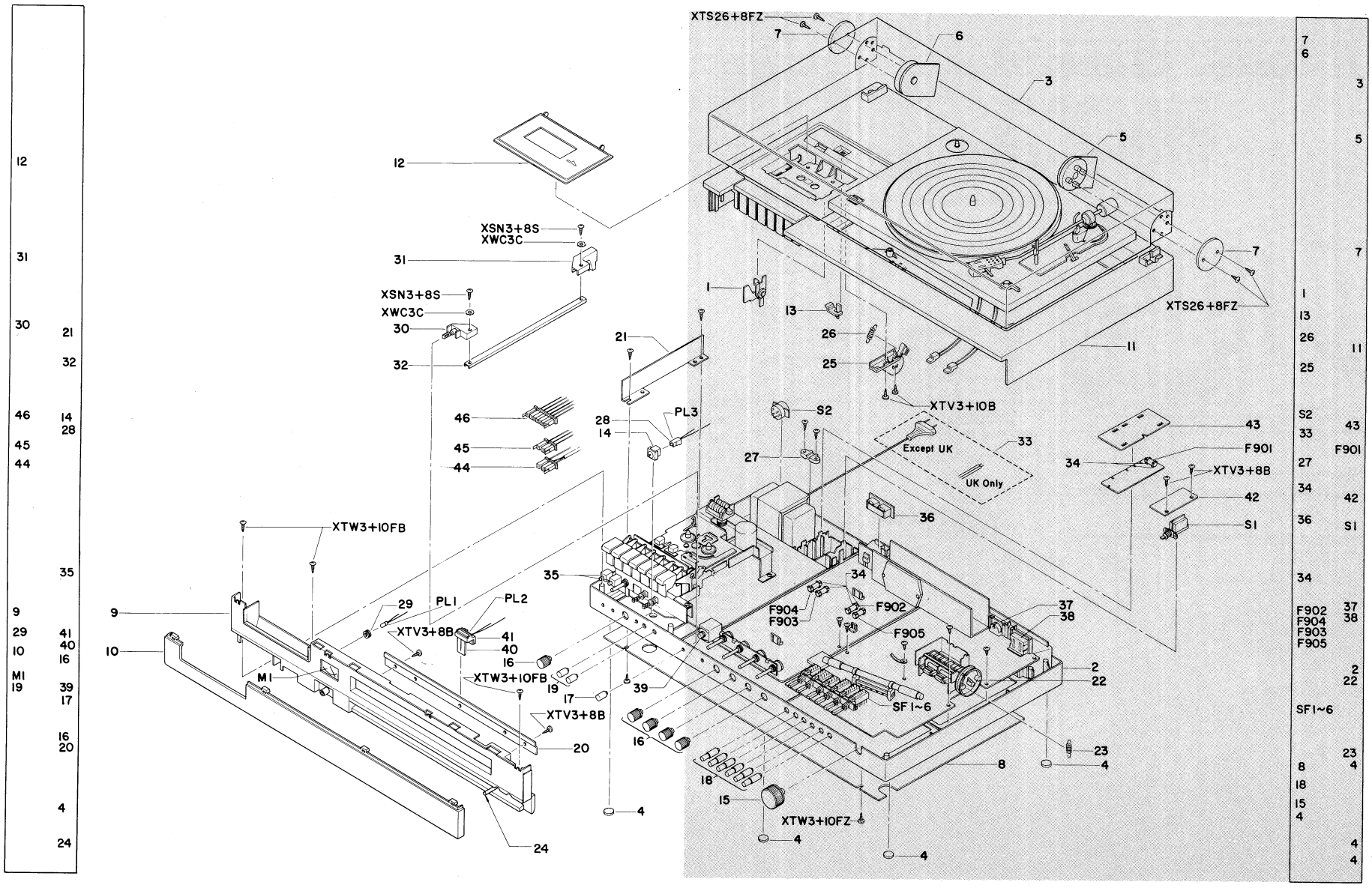
Ref. No.	Part No.	Description				Per Set (pcs.)	Remarks
C831	**ECQS1182JZ**	Styrol	1800pF	125WV	±5%	1	
C832	**ECAG16ER1**	Electrolytic	0.1μF	16WV		1	
C833	**ECEA16V100**	Electrolytic	100μF	16WV		1	
C834	**ECAG16ER1**	Electrolytic	0.1μF	16WV		1	
C835	**ECQM1H333MZ**	Polyester	0.033μF	50WV	±20%	1	
C836	**ECQM1H683MZ**	Polyester	0.068μF	50WV	±20%	1	
C837	**ECQS1471JZ**	Styrol	470pF	100WV	±5%	1	
C838	**ECQM1H104KZ**	Polyester	0.1μF	50WV	±10%	1	
C839	**ECCD1H101K**	Ceramic	100pF	50WV	±10%	1	
C841	**ECEA16V10**	Electrolytic	10μF	16WV		1	
C843	**ECEA50V1**	Electrolytic	1μF	50WV		1	
C844	**ECEA16V47**	Electrolytic	47μF	16WV		1	
C845	**ECEA16V100**	Electrolytic	100μF	16WV		1	
C846	**ECEA16V220**	Electrolytic	220μF	16WV		1	
C847	**ECEA50V1**	Electrolytic	1μF	50WV		1	
C849,850	**ECCD1H331K**	Ceramic	330pF	50WV	±10%	2	
C854	**ECKD1H103PF**	Ceramic	0.01μF	50WV	+100,−0%	1	
C901,902	**ECKD1H103PF**	Ceramic	0.01μF	50WV	+100,−0%	2	
C903,904	**ECKD1H103PF**	Ceramic	0.01μF	50WV	+100,−0%	2	
C905,906	**ECKD1H103PF**	Ceramic	0.01μF	50WV	+100,−0%	2	
C907	**ECQM1H334MZ**	Polyester	0.33μF	50WV	±20%	1	
C908,909	**ECKD1H103PF**	Ceramic	0.01μF	50WV	+100,−0%	2	
C910,911	**ECKDHS101MB**	Ceramic	100pF	50WV	±20%	2	(Except UK)
C912	**ECKDGS101MB4**	Ceramic	100pF	50WV	±20%	1	(UK only)
C913	**ECET35R332SU**	Electrolytic	3300μF	35WV		1	
C914	**ECEA35V220**	Electrolytic	220μF	35WV		1	
C915	**ECKD1H102PF**	Ceramic	0.001μF	50WV	+100,−0%	1	
C916	**ECEA16V220**	Electrolytic	220μF	16WV		1	
C917	**ECEA16V100**	Electrolytic	100μF	16WV		1	
C918	**ECET16R2200S**	Electrolytic	220μF	16WV		1	
C919,920	**ECET25R332SU**	Electrolytic	3300μF	25WV		2	
VARIABLE CAPACITORS							
CV101,102 103,201 202	SCVC158J124K	Tuning Capacitor w/Trimmer CT101, 102				1	
CT103	RCVTY12B218	Trimmer				1	
CT201,202 203,204	SCVCTY211D31	Trimmer				2	
VARIABLE RESISTORS							
VR301	EVTS3MA00B53	Preset, 5kΩ B				1	
VR302	EVLS3AA00B23	Preset, 2kΩ B				1	
VR401,402	EVLS3AA00B24	Preset, 20kΩ B				2	
VR403,404	EWKGTA031A24	REC				1	○
VR405,406	EVLS3AA00B53	Preset, 5kΩ B				2	
VR407	EVLS3AA00B14	Preset, 10kΩ B				1	
VR501,502	EWKEUA031A54	Treble				1	○
VR503,504	EWKEUA031A54	Bass				1	○
VR505,506	EWKK7A031A54	Volume				1	○
VR507	EVHEPA038G54	Balance				1	○
VR801	EVLS3AA00B13	Preset, 1kΩ B				1	
VR802,803	EVLS3AA00B14	Preset, 10kΩ B				2	
SWITCHES							
SF1～6	SSH614	Function Selector				1	○
ST1～12	ESD86022	REC, Selector				1	
S1	ESB7066	Power ON/OFF (UK only)				1	
S1	ESB7067	Power ON/OFF (Except UK)				1	
S2	ESE3742	Voltage Selector				1	
S401,402, 404,405, 406,801, 802,803, 804	SSH208	Tape Selector				1	
S807	SST12	WDS Selector				1	

SG-1090L

REPLACEMENT PARTS LIST

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
PACKING				
1	SPN2952	Carbon Inside	1	○
2	SPN2954	Pad, Dust Cover	1	○
3	SPN2956	Pad, Right	1	○
4	SPN2958	Pad, Left	1	○
5	SPN2960	Pad, Front	1	○
6	SPN2962	Pad, T.T.	1	○
7	SPP130	Set Cover	1	
8	SNE218	Screw T.T.	2	
9	SJY5030-1	Spacer	4	○
10	SNW601	Washer	2	
OTHERS				
1	SQX5878-1	Instruction Book (UK only)	1	○
1	SQX5876	Instruction Book (Except UK)	1	○
2	SJM2	Mic Stand (UK only)	2	
3	WM2201N	Mic (UK only)	2	
4	SJP9206	Plug, FM ANT (UK only)	1	

LOCATION OF PARTS



REPLACEMENT PARTS LIST

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
		CABINET AND CHASSIS		
1	SXE104	Hook Assembly	1	
2	SKM5221	Cabinet Body B	1	○
	[**Not Supply**]	Spacer, Player Board	(4)	○
3	SGE752	Dust Cover	1	○
4	SHS3018	Foot	4	
5	SBH9056	Hinge Right	1	○
6	SBH9058	Hinge Left	1	○
7	SBH9054	Cap	2	
8	SYU326	Bottom Board Assembly	1	○
	Not Supply	Bottom Board	(1)	○
		Shield Sheet	(1)	○
9	SGW4240	Escutcheon	1	○
10	SKD3940	Dial Scale (UK only)	1	○
10	SKD3941	Dial Scale (Except UK)	1	○
11	SYK1536	Cabinet Assembly	1	
	Not Supply	Cabinet Body	(1)	○
		Reflector Plate	(1)	
		Bracket A, Cabinet	(1)	○
		Bracket B, Cabinet	(2)	○
		Cassette Indication Plate	(1)	○
12	SYE546-1	Cassette Lid Assembly (UK only)	1	○
	Not Supply	Cassette Lid A	(1)	○
		Cassette Lid B	(1)	○
		Spring, Ejector	(2)	○
		Ejector Stopper	(2)	○
		Ejector	(2)	○
12	SYE546	Cassette Lid Assembly (Except UK)	1	○
	Not Supply	Cassette Lid A	(1)	○
		Cassette Lid B	(1)	○
		Ejector Right	(1)	○
		Ejector Left	(1)	○
		Gear	(2)	○
		Spring, Ejector	(2)	○
13	SBC264-1	Button, Reset	1	○
14	SGL132	Indicator, Dolby	1	
15	SBN772	Knob, Tuning	1	○
16	SBN774	Knob, Volume	5	○
17	SYE520-1	Button, Power	1	○
18	SYE468-3	Button, A	6	○

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
19	SYE470-1	Button, B	2	○
20	SUG102	Guide, Pointer	1	○
21	SMC204	Shiled Plate	1	
22	SDD46K	Drum, Dial	1	
23	RDS4170A	Spring, Dial	1	
24	SDT9308-1	Shaft, Tuning	1	
25	SXE126-1	Eject Arm Assembly	1	
	Not Supply	Eject Arm	(1)	
		Eject Shaft Retainer	(1)	○
26	SUS238	Arm Spring	1	○
27	SHR134	Power Cord Clamp	1	
28	SHG9014	Rubber Lamp	1	
29	SHG9100	Rubber, Lamp	1	
30	SME162	Push Lever A	1	○
31	SME164	Push Lever B	1	○
32	SME166	Push Lever C	1	○
33	SJA116	AC Power Cord (UK only)	1	
33	SJA88	AC Power Cord (Except UK)	1	
34	SJF110	Fuse Holder	10	
35	RJJ87YA-C	Jack, Microphones	2	
36	SJF9208	Terminal S.P.	1	
37	SJF9102	Terminal 5P DIN	1	
38	SJS9408	Socket, ANT	1	○
39	XCJS6PF4	Jack, Headphone	1	○
40	SDP5006	Pointer	1	○
41	SDA50	Pointer Holder	1	○
42	SHR540	Power SW Sheet	1	○
43	SMX136	Case Lid	1	
44	SWK240	Plug w/Lead (Deck)	1	
45	SWK242	Plug w/Lead (Deck)	1	
46	SWK280	Plug w/Lead (Deck)	1	○
	SWK284	Plug w/Lead (Chassis)	1	○
	SWK282	Plug w/Lead (Chassis)	1	○

WIRING DIAGR

IC301	NO	1	2	3	4	5	6	7	8
	ST	9.42V	2.92V	5.47V	5.25V	5.31V	0.73V	0V	0.61V
	MONO	9.83V	2.92V	5.5V	5.66V	5.76V	11.3V	0V	0.6V
	ST	2.77V	2.1V	2.1V	2.1V	2.33V	2.1V	2.1V	6.22V
	MONO	2.76V	2.11V	2.11V	2.11V	2.31V	2.1V	2.12V	6.18V
	NO	16	15	14	13	12	11	10	9

IC201	NO	1	2	3	4	5	6	7	8
	FM	0.79V	0V	2.72V	5.66V	1.08V	0V	1.08V	6.87V
	AM	0.79V	0V	2.78V	5.81V	1.08V	0V	1.08V	7.0V
	FM	0.55V	0.82V	0.81V	0.55V	0.82V	0.77V	0.98V	0.82V
	AM	0.73V	6.16V	1.46V	0.73V	6.16V	0.78V	1.49V	6.29V
	NO	16	15	14	13	12	11	10	9

IC701	1	2	3	4	5	6	7	8	9	10	11	12
	0V	0V	0V	-11.6V	-9.05V	-16.3V	0V	15.7V	16.3V	0V	-16.3V	-8.75

TR503,504	
C	6.0V
B	0.91V
E	0.3V
IC	0.9mA

TR901	
C	27V
B	14V
E	13.4V
IC	0.1A

TR601	
C	1.16V
B	0.58V
E	0.06V
IC	0.05mA

TR602	
C	3.8V
B	1.16V
E	0.59V
IC	0.6mA

TR603	
C	1.16V
B	0.58V
E	0.06V

TR604	
C	3.8V
B	1.16V
E	0.59V

TR101	
S	5.71V
G	-3.5mV
D	0V

TR102	
C	2.39V
B	1.51V
E	0.82V

TR103	
C	6.18V
B	0.71V
E	0.03V

TR201	
C	6.17V
B	3.05V
E	2.37V

TR803	
C	0V
B	0.19V
E	0V

TR804	
C	0V
B	0.19V
E	0V

TR501, 502	
C	3.79V
B	1.32V
E	0.72V

PLAYER

PHONO MOTOR

To P2 -MC1

To P3-MC8

LINE ANT

P7

L901 SUP7081

L902

C910 100P (EXCEPT UK)

C912 100P (UK only)

C911 100P (EXCEPT UK)

F901

S2
POWER VOLTAGE SELECTOR SWITCH

Orange
White
Red
Brown
Blue
Yellow
Black
Sky Blue

EXT. ANT. JACK

FM AM

PLAY/REC JACK

TAPE IN REC. OUT

P1

P3

IC701

IC201

IC301

MC1

MC2-1

MC2-2

MC6

MC7

MC8

T101

T201

T202

T203

T204 T205

CT103

CT201

CT202

CT203

CT204

CF201

CF202

TP101

TP201

TP202

TP301

TP302

Z201

Z202

D901

D902

D903

D904

D907

L101

L102

L104

L105

L201

L202

L203

L204

L205

F.ANT

VR301 5kB

VR302 2kB

D301

D302

To VC TERMINAL②

P2
FM STEREO EYE

SF1 ~ SF3
SELECTOR SWITCH

SF4 ~ SF6
TAPE MONITOR SWITCH

VR501,502
TREBLE CONTROL

VR503,504
BASS CONTROL

VR507
BALANCE CONTROL

VR505,
VOLUME CO

* This diagram might be modified without notice for further development of technology.

ING DIAGRAM

8	9	10	11	12	13	14	15	16
7V	16.3V	0V	-16.3V	-8.75V	-11.6V	0V	0V	0V

IC801 802	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	5.9V	5.9V	5.72V	5.89V	5.89V	5.89V	5.91V	6.18V	0V	6.16V	6.45V	0.69V	0.69V	0.57V	0.57V	11.6V

TR405,406	
C	5.48V
B	2.66V
E	2.0V

TR401,402	
C	1.17V
B	0.54V
E	0.006V

TR403,404	
C	5.3V
B	1.17V
E	0.57V

TR409,410	
C	13.2V
B	5.0V
E	4.38V
IC	8.5mA

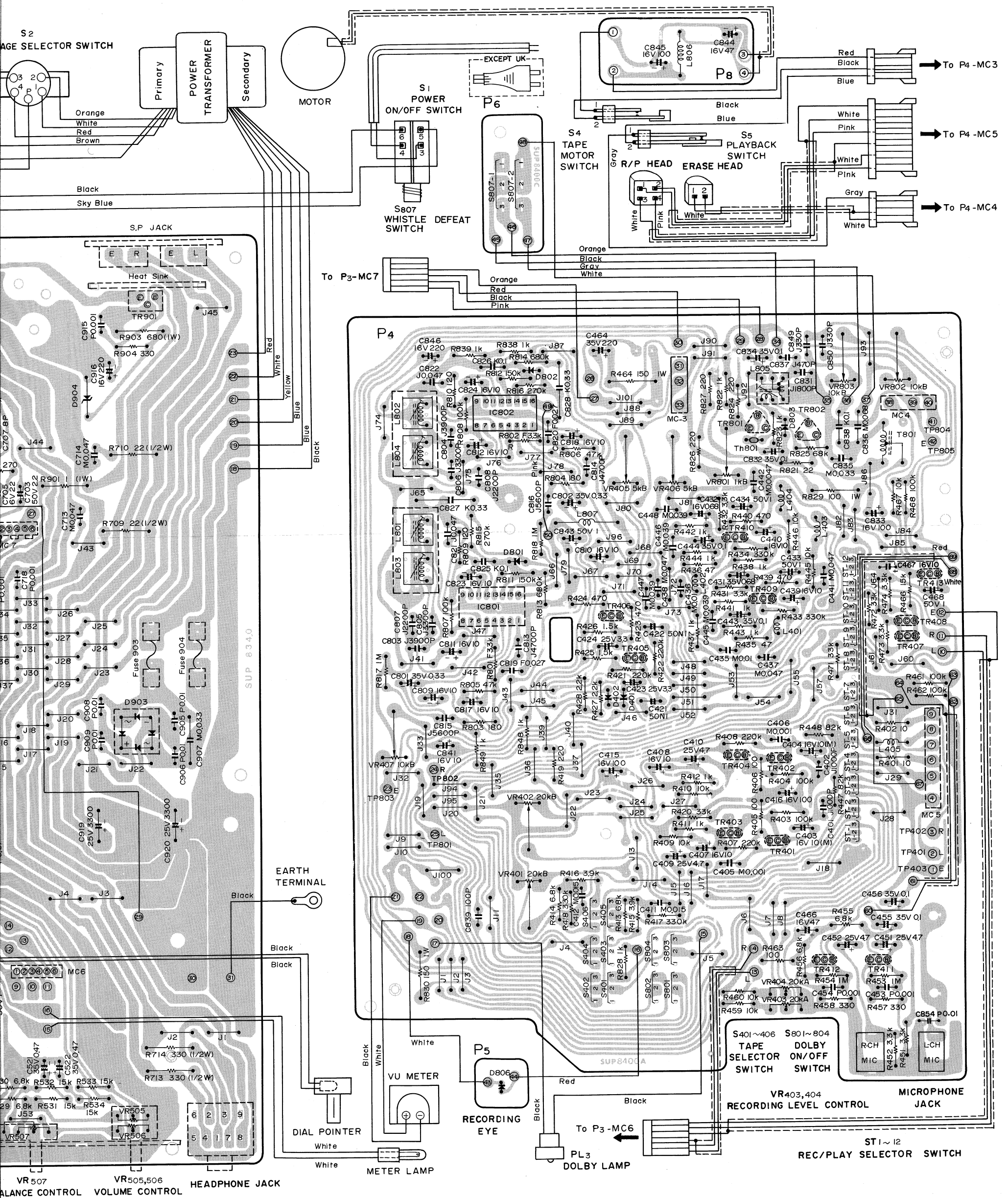
TR411,412	
C	3.6V
B	0.98V
E	0.37V

TR407,408	
C	0.1V
B	0.1V
E	0V

TR413	
C	—
B	0V
E	0.1V

TR801	
C	0V
B	8.26V
E	7.9V

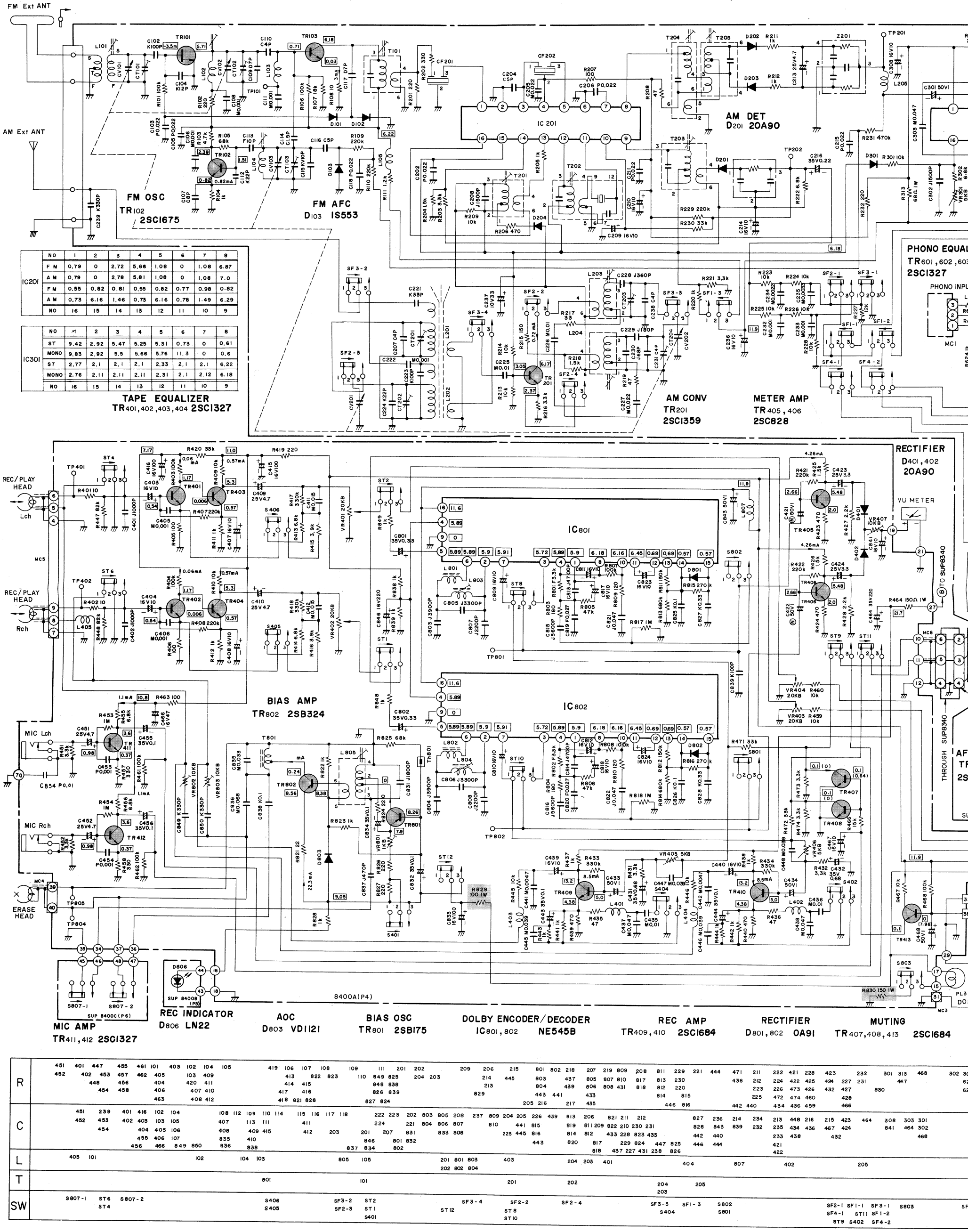
TR802	
C	0.24V
B	8.38V
E	8.56V



SG-1090L

SCHEMATIC DIA

FM RF AMP TR101 2SK49 | FM MIX TR103 2SC1675 | FM AGC D101,102 20A90 | FM AM IF AMP IC201 AN217 | AM AGC D204 20A90 | FM DET D202,203 20A90 | SWITCHING D301 MA161 | MPX IC301



IC201	NO	1	2	3	4	5	6	7	8
	FM	0.79	0	2.72	5.66	1.08	0	1.08	6.87
	AM	0.79	0	2.78	5.81	1.08	0	1.08	7.0
	FM	0.55	0.82	0.81	0.55	0.82	0.77	0.98	0.82
	AM	0.73	6.16	1.46	0.73	6.16	0.78	1.49	6.29
	NO	16	15	14	13	12	11	10	9

IC301	NO	1	2	3	4	5	6	7	8
	ST	9.42	2.92	5.47	5.25	5.31	0.73	0	0.61
	MONO	9.83	2.92	5.5	5.66	5.76	11.3	0	0.6
	ST	2.77	2.1	2.1	2.1	2.33	2.1	2.1	6.22
	MONO	2.76	2.11	2.11	2.11	2.31	2.1	2.12	6.18
	NO	16	15	14	13	12	11	10	9

R	451 401 447 455 461 101 403 102 104 105 / 452 402 453 457 462 405 103 409 / 448 456 404 420 411 / 454 458 406 407 410 / 463 408 412 / 419 106 107 108 109 111 201 202 / 413 822 823 110 849 825 204 203 / 414 415 848 838 / 417 416 826 839 / 418 821 828 827 824 / 209 206 215 801 802 218 207 219 809 208 811 229 221 444 471 211 222 421 228 423 232 301 313 468 302 30 / 214 445 803 437 805 807 810 817 813 230 438 212 224 422 425 424 227 231 467 62 / 213 804 439 806 808 431 818 812 220 223 226 473 426 432 427 830 62 / 829 443 441 433 814 815 225 472 474 460 428 / 205 216 217 435 446 816 442 440 434 436 459 466
C	451 239 401 416 102 104 108 112 109 110 114 115 116 117 118 222 223 202 803 805 208 237 809 204 205 226 439 813 206 821 211 212 827 236 214 234 213 448 216 215 423 464 308 303 301 / 452 453 402 403 103 105 407 113 111 411 224 221 804 806 807 810 441 815 819 811 209 822 210 230 231 828 843 839 232 235 434 436 467 424 841 464 302 / 454 404 405 106 408 409 415 412 203 201 207 831 833 808 225 445 816 814 812 433 228 823 435 442 440 233 438 432 468 / 455 406 107 835 410 846 801 832 443 820 817 229 824 447 825 446 444 421 / 456 466 849 850 836 838 837 834 802 818 437 227 431 238 826 422
L	405 101 102 104 103 805 105 201 801 803 403 204 203 401 404 807 402 205 / 202 802 804
T	801 101 201 202 204 205 / 203
SW	S807-1 ST6 S807-2 / ST4 S406 S405 SF3-2 ST2 / SF2-3 ST1 S401 SF3-4 ST12 SF2-2 ST8 / ST10 SF2-4 SF3-3 SF1-3 S802 / S404 S801 SF2-1 SF1-1 SF3-1 S803 SF / SF4-1 ST11 SF1-2 / ST9 S402 SF4-2

* This diagram might be modified without notice for further development of technology.

MATIC DIAGRAM

CHING
MAI61

MPX DECODER
IC301 LA3350A

STEREO EYE
D302 LN22

AVR
TR901 2SC1398

AVR
D904 MAI130

SUP8320B
(P2)

ELECTRONIC GOVERNOR
PHONO MOTOR

TO SUP8400

IC 301

IC701

PHONO EQUALIZER
TR601, 602, 603, 604
2SC1327

AF 1ST AMP
TR501, 502
2SC1327

MUTING
TR803, 804
2SC1684

RECTIFIER
D401, 402
20A90

SWITCHING
D807 VD1121

AF 2ND AMP
TR503, 504 2SC1684

POWER AMP
IC701 STK040

RECTIFIER
D901 10DC1
D902 SIRBA10
D903 S4VB10

MUTING
,408, 413 2SC1684

SUP8320A(P1)

SUP8340(P3)

SUP7500(P8)

SUP7081(P7)

FOR EXCEPT UK

THROUGH SUP8340

DOLBY LAMP

( )ARE AT S5/OFF

SPEAKER Lch

SPEAKER Rch

PHONES

METER LAMP

DIAL LAMP

CASSETTE MOTOR

FM ANT

(SIDE VIEW)

(BOTTOM VIEW)

TR901

TR201, 401, 402, 403
404, 405, 406, 407
408, 409, 410, 411
412, 413, 501, 502
503, 504, 601, 602
604, 803, 804, 102
103, 603

TR801, 802

TR101

D301

D201, 204, 401
402, 801, 802
101, 102

D202, 203

D103

D904

D302, 806

D803, 807

D901

D902

D903

STK040
STEREO AMPLIFIER

IC701

IC201, 301, 801, 802

L203, 204
T201, 203
204

T205

L805

L801, 802
803, 804

T202

S807-2
S807-1

S402 S404 S406
S401 S403 S405
S802 S804
S801 S803

SF1-2 SF1-4
SF1-1 SF1-3
SF2-2 SF2-4
SF2-1 SF2-3
SF3-2 SF3-4
SF3-1 SF3-3
SF4-2
SF4-1 S806
SF5-1 SF5-4
SF5-3
SF6-2
SF6-1

ST-1 ST-2 ST-3 ST-4 ST-5 ST-6 ST-7 ST-8 ST-9 ST-10 ST-11 ST-12

(BOTTOM VIEW)

NOTES

(1) SWITCH POSITIONS

S1	POWER SWITCH IN "OFF" POSITION
S2	POWER VOLTAGE SELECTOR IN "220V" POSITION (P:COMMON 1:110V 2:120V 3:220V 4:240V)
S3	PHONO SPEED SELECTOR IN 45RPM POSITION
S4	TAPE MOTOR SWITCH IN "OFF" POSITION
S5	PLAYBACK SWITCH IN "OFF" POSITION
S6	PHONO MOTOR SWITCH IN "OFF" POSITION
S401~406	TAPE SELECTOR SWITCH IN "NORMAL" POSITION
S801~S804	DOLBY NR SWITCH IN "OUT" POSITION
S806	MUTING SWITCH IN "OFF" POSITION
S807-1~S807-2	WHISTLE DEFEAT SWITCH IN "A" POSITION
ST1~ST12	REC SWITCH IN "PLAY" POSITION
SF1-1~SF1-4	FUNCTION FM AUTO SWITCH IN "ON" POSITION
SF2-1~SF2-4	FUNCTION MW SWITCH IN "OFF" POSITION
SF3-1~SF3-4	FUNCTION LW SWITCH IN "OFF" POSITION
SF4-1~SF4-2	FUNCTION PHONO SWITCH IN "OFF" POSITION
SF5-1~SF5-2	FUNCTION TAPE SWICH IN "OFF" POSITION
SF6-1~SF6-2	TAPE MONITOR SWITCH IN "SOURCE" POSITION

(2) Letters M, P, K & J indicate tolernce of capacitors as follows

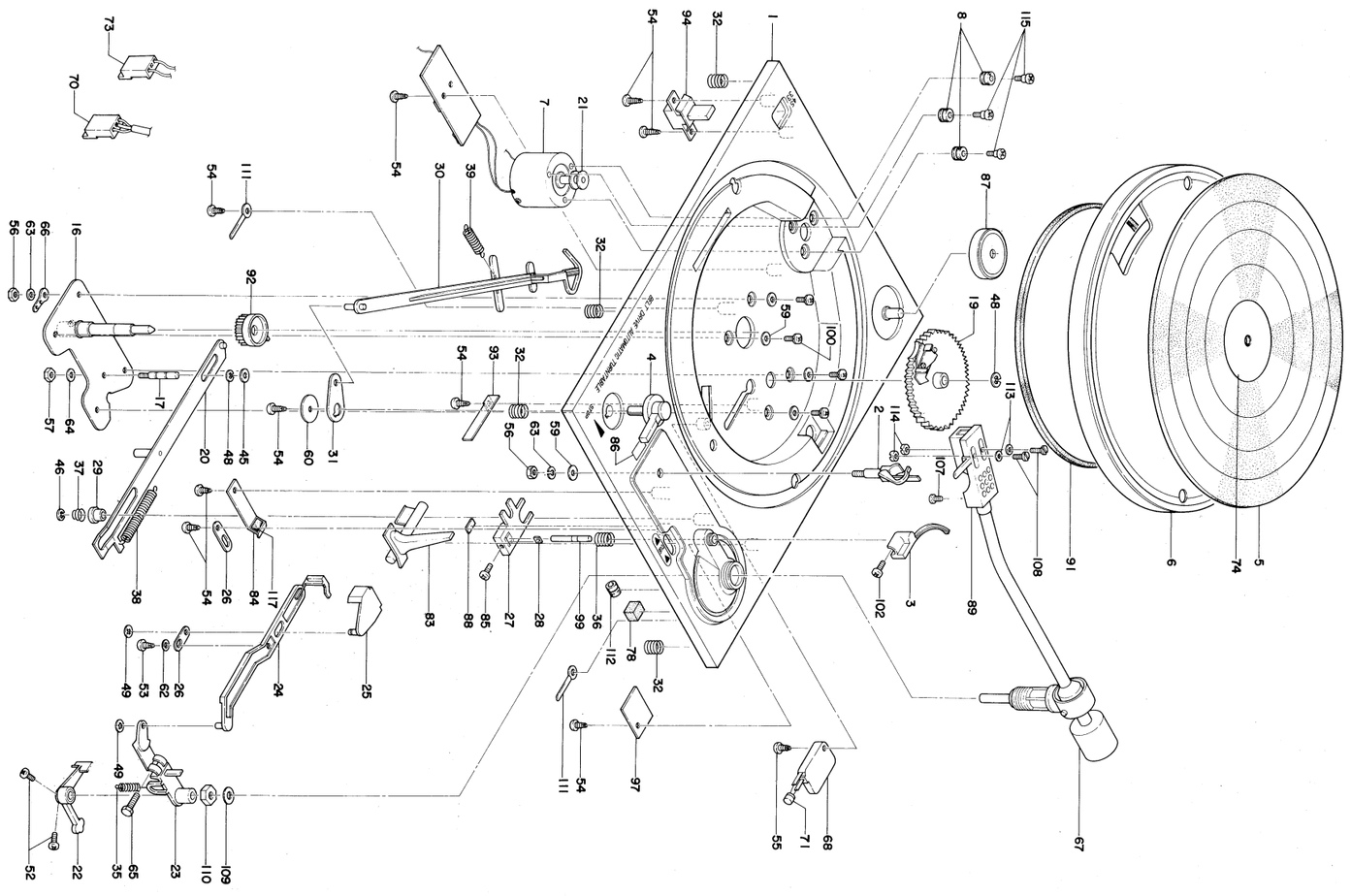
M=±20% P=+100 −0 % K=±10% J=±5%

(3) DC Voltages shown in □ or ( ) are to be measured with VTVM under no signal condition in AM or FM position.

Figures in ( ) indicate DC voltages when muting switch (S5 or S806) is operated.

| | | |

EXPLODED VIEW OF RECORD PLAYER (SP-501J)



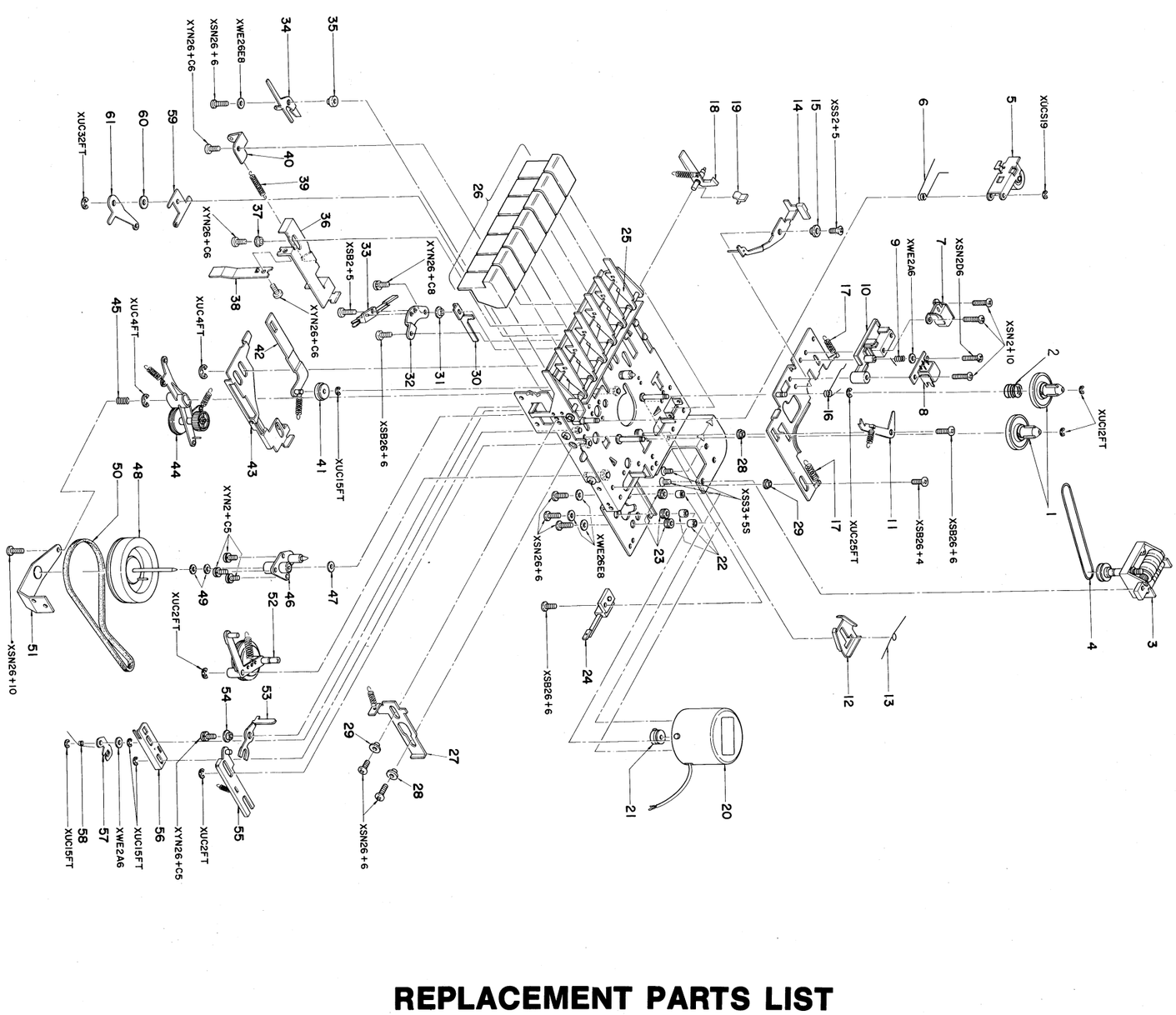
REPLACEMENT PARTS LIST

RECORD PLAYER SP-501J

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
1	SJY114	Player Board Assembly	1	○
1-1	(SJY1004-1)	Player Board	(1)	○
1-2	(SQX9422)	Label, Cueing	(1)	
1-3	(SUW1148)	Bracket A	(2)	○
1-4	(SUW1150)	Bracket B	(1)	○
2	SJY42	Tone Arm Rest Assembly	1	○
3	SJY5026	Lifter	1	○
4	SJY46	Cut Knob Assembly	1	○
5	SJY38	Turntable Mat Assembly	1	
6	SJY3006	Turntable	1	○
7	MHE-5P2S	Motor	1	○
8	SHG9092	Rubber Cushion	3	○
9	SUD130	Spacer	3	○
16	SJY44-2	Turntable Shaft Assembly	1	○
17	SJY9034-1	Main Gear Shaft	1	
19	SJY32	Main Gear Assembly	1	
20	SJY6-1	Operating Plate Assembly	1	
21	SJY114	Capstan with Screw (XXA2D3FR)	1	
22	SJY9016-1	Switch Lever	1	
23	SFUM623-4E	Plate, Tone Arm	1	
24	SJY9042	Actuating Link	1	
25	SJY9044	Switch Control Plate	1	
26	SJY9046	Cueing Bracket	1	
27	SJY9048	Stopper, Lift	1	
28	SNE424	Holder, Stopper	1	
29	SFUM623-2	Collar, Operating Plate	1	
30	SJY9052	Feed Link	1	
31	SJY9054	Cut Lever	1	
32	SJY9028	Spring	4	
35	SJY9056	Spring, Tone Arm Plate	1	
36	SJY9058	Spring A, Lift	1	
37	SJY9060-1	Spring B, Lift	1	
38	SJY9062	Spring, Operating Plate	1	
39	SJY9064	Spring, Feed Link	1	
45	SNW622-2	Washer 6ϕ	1	
46	XUC3	Circlip 3ϕ	1	
48	XUC5	Circlip 5ϕ	2	
49	SNE428	Push Nut	2	
52	XSN3+6S	Screw 3 × 6 mm	2	
53	XTV23+6B	Screw 2.3 × 6 mm	1	
54	XTV3+8B	Screw 3 × 8 mm	9	
55	XTV3+18B	Screw 3 × 18 mm	1	
56	XNG3B	Nut 3 mm	2	
57	XNG4B	Nut 4 mm	1	
59	XWE3D8	Washer	5	

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
60	XWE3E16	Washer	1	
62	XWE23D6	Washer	1	
63	XWA3B	Washer	2	
64	XWA4B	Washer	1	
65	VF3B20S	Screw, Tone Arm Plate	1	
66	SJT202-1	Lug	1	
67	SPU18-2	Tone Arm	1	○
67-1	(EPC78SMAD)	Cartridge, Ceramic	(1)	○
67-2	(EPS34STSD)	Stylus, Diamond	(1)	○
68	AM9688	Micro Switch (S5)	1	
70	SWK274	PU Plug Assembly	1	○
71	ECEA50V1	1μF 50WV	1	
72	EVN31A00B24	Semi-fixed Resistor	2	
73	SWK276	Connector	1	
74	SJY9100	Trim, Turntable Mat	1	
78	SHG916	Rubber Cushion	1	
83	SJY36	Cueing Lever Assembly	1	
84	SJY9120	Spring Plate, Cueing Lever	1	
85	XXAR3P6	Screw, Stopper	1	
86	SQX9550	Label, Stylus	1	○
87	SJY5018	45 RPM Adaptor	2	
88	SHG638	Felt, Cueing Lever	1	○
89	SJY52	Head Shell Assembly	1	
91	SJY9116	Belt	1	○
92	SJY9118	Gear, Sub	1	○
93	SJY9072	Plate Spring	1	○
94	SSL12-1	Lever Switch, Speed Selector (S9)	1	○
97	SUP7260-2	P.C. Board	1	
99	SJY9110	Shaft, Lifter	1	○
100	XYN3+C10	Screw, 3 mm × 10 TT Shaft Mounting	4	
102	XTN23+5B	Screw, 2.3 mm × 5 Lifter	1	
107	XTN23+5B	Screw, Head Shell Mounting	1	
108	XXHS26-C8AV	Screw, Cartridge Mounting	2	○
109	XWE13A	Washer, Tone Arm Mounting	1	
110	XNG13B	Nut, Tone Arm Mounting	1	
111	SHE36-3	Lead Holder	2	
112	RHG3-1	Cushion, Lead Clamp	1	
113	SNW272	Washer, Cartridge Mounting	2	○
114	SNE442	Nut, Cartridge Mounting	2	○
115	SJY9288	Motor Mounting Shaft	3	
117	SHS9154-1	Sheet, Protector	1	

EXPLODED VIEW OF CASSETTE DECK (SJD-504-1)



REPLACEMENT PARTS LIST

CASSETTE TAPE DECK (SJD-504-1)

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
1	SMQ1626	Reel Table	2	
2	SMQ462	Spring, Supply Reel	1	
3	SMQ1544	Tape Counter	1	
4	SMQ1588	Belt, Counter	1	
5	SMQ1364	Pressure Roller Assembly	1	
6	SMQ1366	Spring, Pressure Roller	1	
7	SJH14	Erase Head	1	
8	SJH34	R/P Head	1	
9	SMQ678	Spring, R/P Head	1	
10	SMQ1362-1	Head Base	1	
11	SMQ1388	Eject Stop Lever w/Spring	1	
12	SMQ1354	Brake Arm	1	
13	SMQ1358	Spring, Brake Arm	1	
14	SMQ1390	Lever Assembly, Auto Stop	1	
15	SMQ1392	Spacer, Auto Stop Lever	1	
16	SMQ1444	Spring B, Head Panel	1	
17	SMQ1360	Spring A, Head Panel	2	
18	SMQ1232	Lever, REC Safety w/Spring	1	
19	SMQ1706	Stopper, REC Safety Lever	1	
20	MHT-5PS	Motor	1	
21	SMQ1802	Motor Pulley	1	
22	SMQ718	Spacer, Motor	3	
23	SMQ716	Rubber Cushion, Motor	3	
24	SMQ1378	Leaf Switch, Motor ON-OFF	1	
25	SMQ1704	Push Button Frame Assembly	1	
26	SBC266	Push Button	7	○
27	SMQ1396	Lever, Eject Slide w/Spring	1	
28	SMQ1374	Spacer A, Eject Slide Lever	2	
29	SMQ1398	Spacer B, Eject Slide Lever	2	
30	SMQ1530	Play Lever	1	
31	SMQ1524	Spacer, Play Lever	1	
32	SMQ1528	Bracket, AMP. Switch	1	
33	SMQ1380	Leaf Switch, Tape AMP. ON-OFF	1	
34	SMQ1436-1	Lever, Auto Stop Drive, w/Spring		
35	SMQ1438	Spacer, Auto Stop Lever	1	
36	SMQ1814	Lever, REC Slide	1	○
37	SMQ1426	Spacer, REC Slide Lever	1	
38	SUS236	Spring Plate, REC Switch	1	○
39	SMQ1816	Spring, REC Slide Lever	1	○

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
40	SMQ1652	Spring Hanger	1	
41	SMQ1386	Rewind Idler	1	
42	SMQ1408	Rewind Arm Assembly w/Spring	1	
43	SMQ1406	Operation Plate, Brake	1	
44	SMQ1382-1	FF Arm Assembly w/Spring	1	
45	SMQ678	Spring, Flywheel Retainer	1	
46	SMQ1370-1	Bearing, Flywheel	1	
47	SMQ1402	Nylon Washer	1	
48	SMQ1782	Flywheel	1	
49	SMQ148	Washer, Oil Thrower	2	
50	SMQ1688	Belt, Main	1	
51	SMQ1404	Retainer, Flywheel	1	
52	SMQ1672	Clutch Assembly w/Spring	1	
53	SMQ1410	Pause Lever	1	
54	SMQ1412	Spacer, Pause Lever	1	
55	SMQ1414	Pause Slide Lever A, w/Spring	1	
56	SMQ1416	Pause Slide Lever B	1	
57	SMQ1376	Pause Click Lever	1	
58	SMQ1418	Spring, Pause Click Lever	1	
59	SMQ1430	Rewind Lever	1	
60	SMQ1434	Nylon Washer 6.1ϕ	1	
61	SMQ1432	FF Lever	1	

BLOCK DIAGRAM